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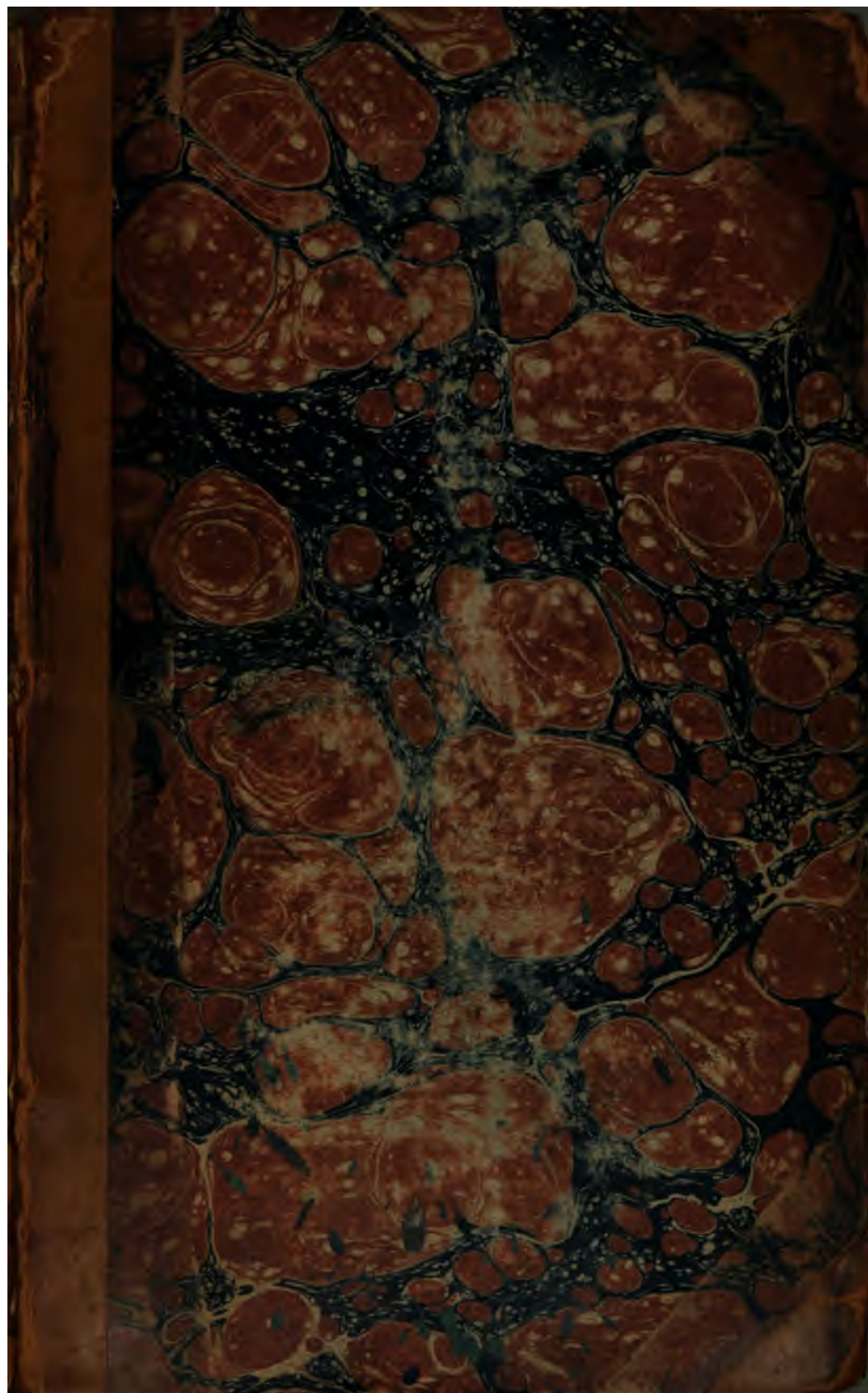
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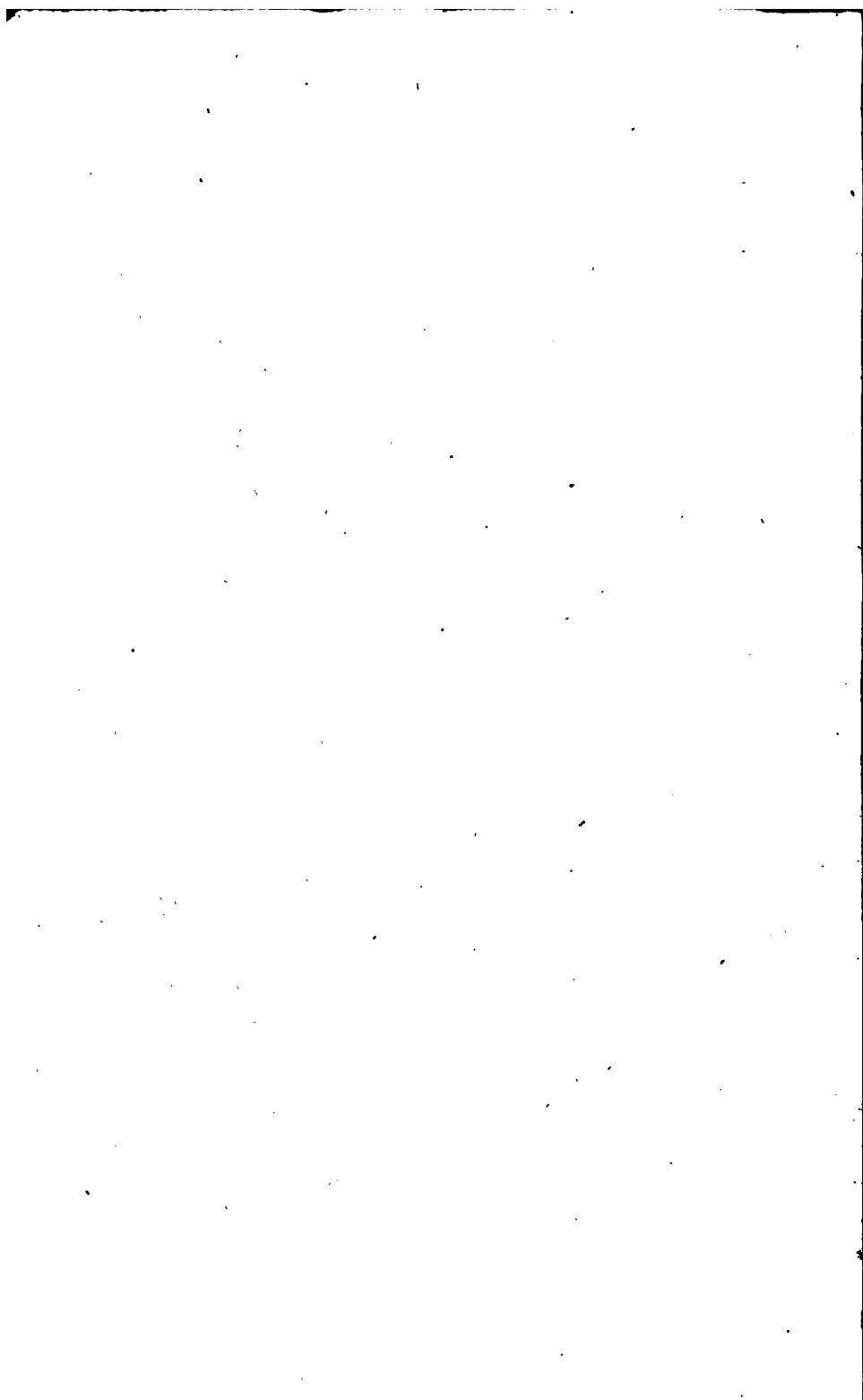
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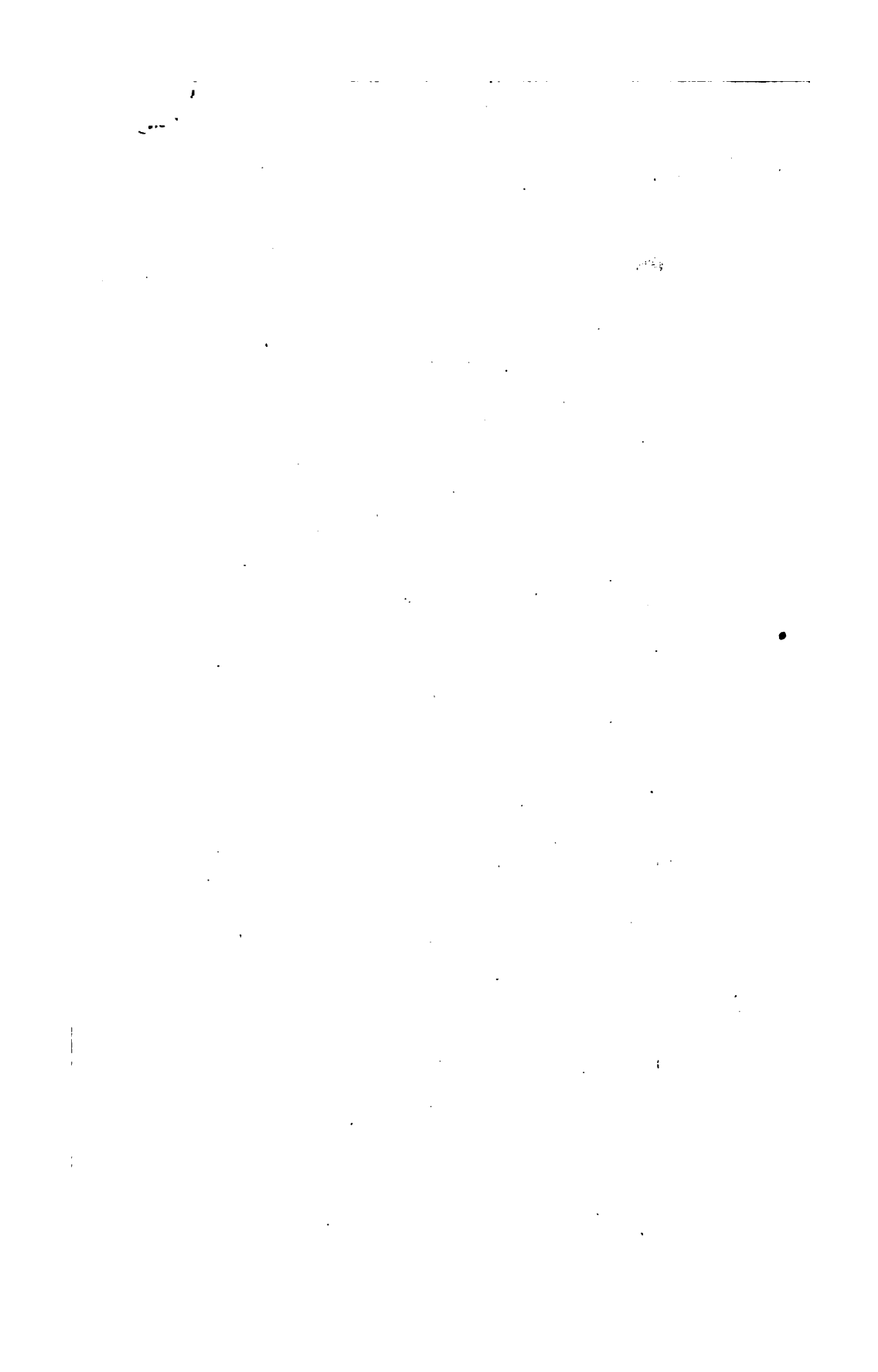
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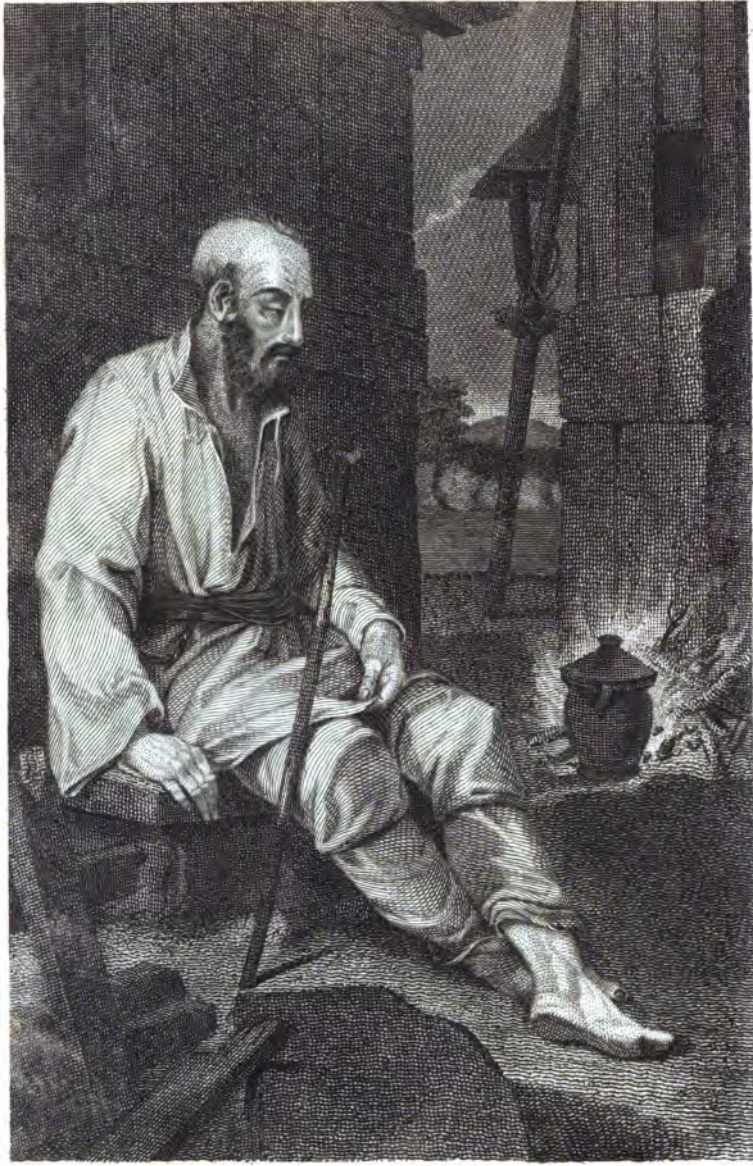


THE
C O D E
OF
HEALTH AND LONGEVITY.

THE UNIVERSITY OF CHICAGO



Engraved for the Code of Health & Longevity.



Meiss. sc. 331. Strand.

Petratosch Zortan, in the 185 Year of his Age.
 He died on the 5th Jan^r. 1724.
 from a Picture formerly belonging to the Percys, Earl of
 Northumberland, and now in the possession of
 William (Bosville Esq.) of Welbeck Street, London?

THE
CODE
OF
HEALTH AND LONGEVITY.

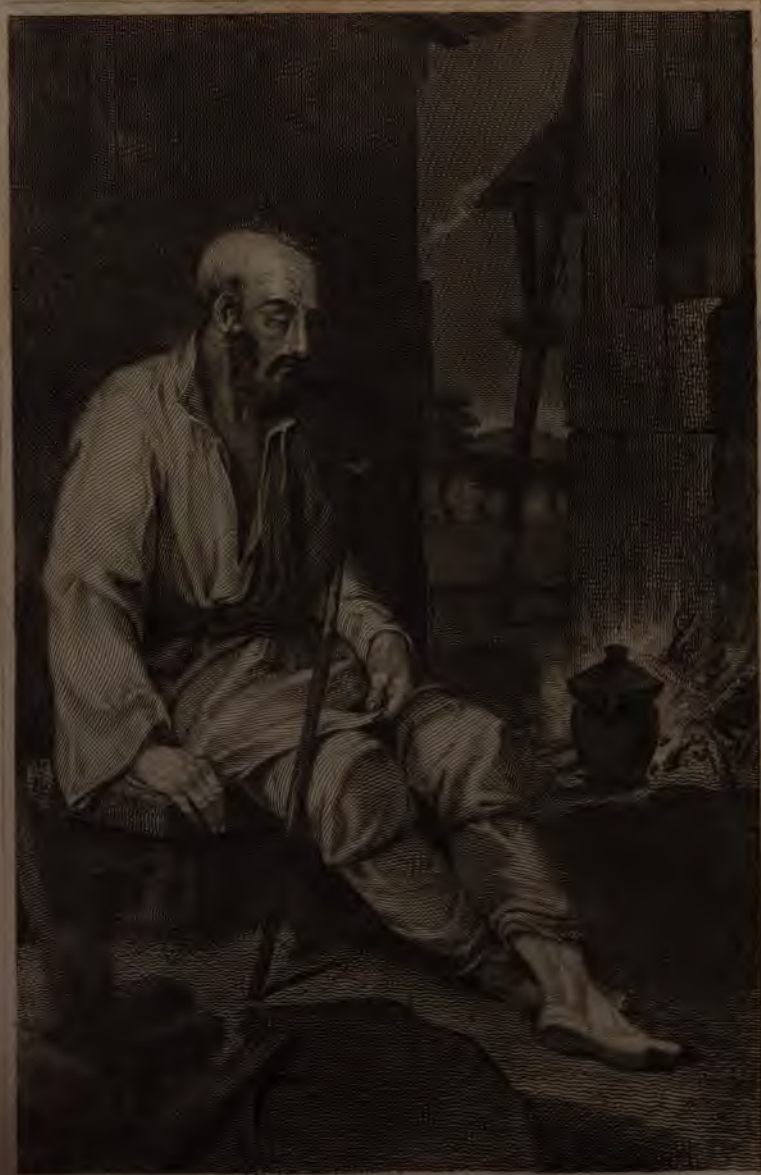
BY
SIR JOHN SINCLAIR, BART.

VOL. III.

*"Homines ad Deos nullâ re proprius accedunt, quam salutem
"hominibus dando."* CICERO, pro Ligario, c. 38.

EDINBURGH,
PRINTED FOR
ARCH. CONSTABLE AND COMPANY;
AND T. CADELL AND W. DAVIES, AND J. MURRAY,
LONDON.
1806.

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Petrutsch Zortan, in the 185th Year of his Age.
He died on the 5th Jan^r. 1723.
from a Picture formerly belonging to the Percys Earl of
Northumberland, and now in the possession of
William Rossmore Esq^r of Woburn Street, London.

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CODE

HEALTH AND LONGEVITY.

BY JOHN STEWART, Esq.

VOL. III.

*— Memoir of Dr. Stewart, a physician, and author of
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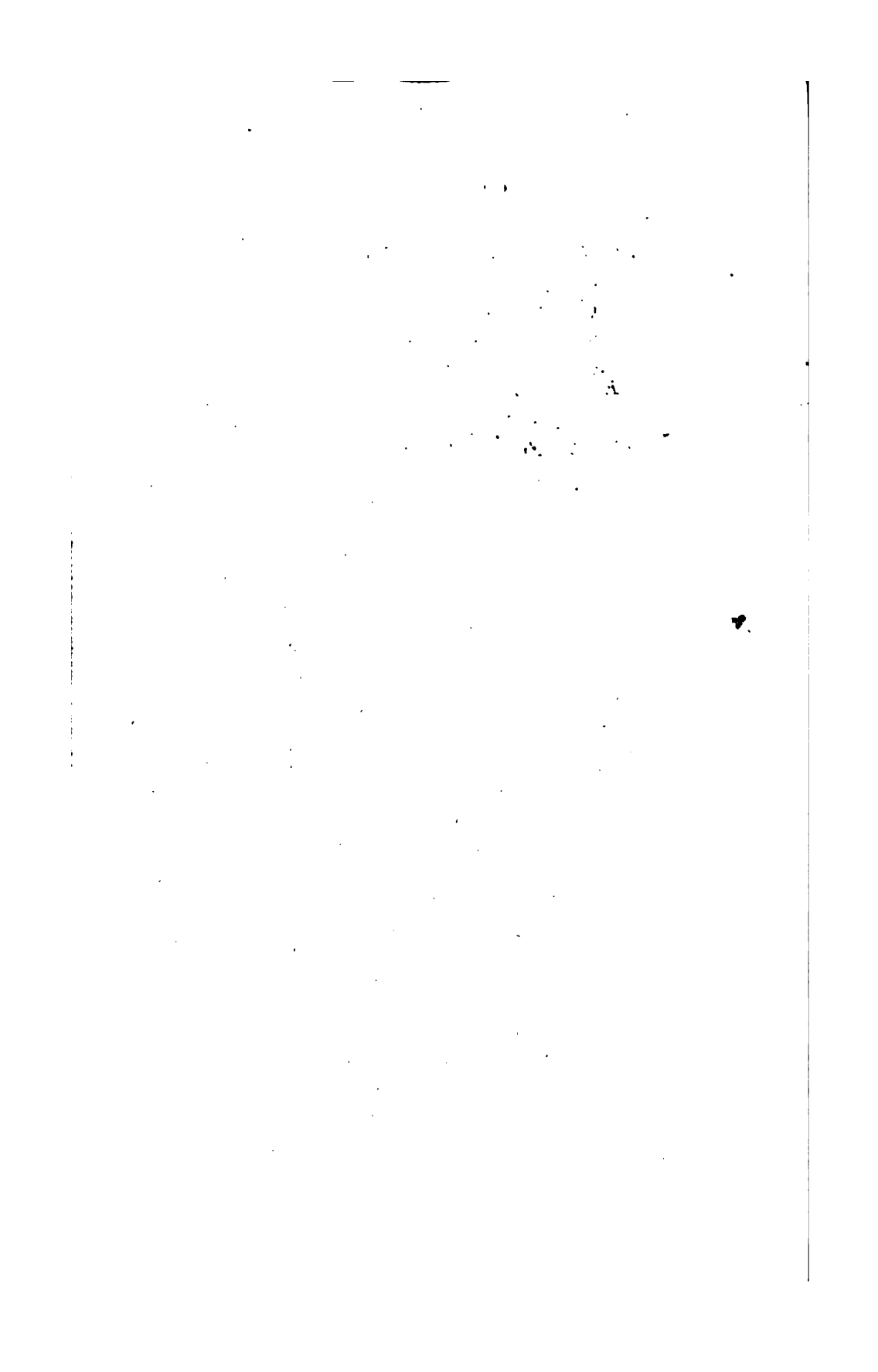
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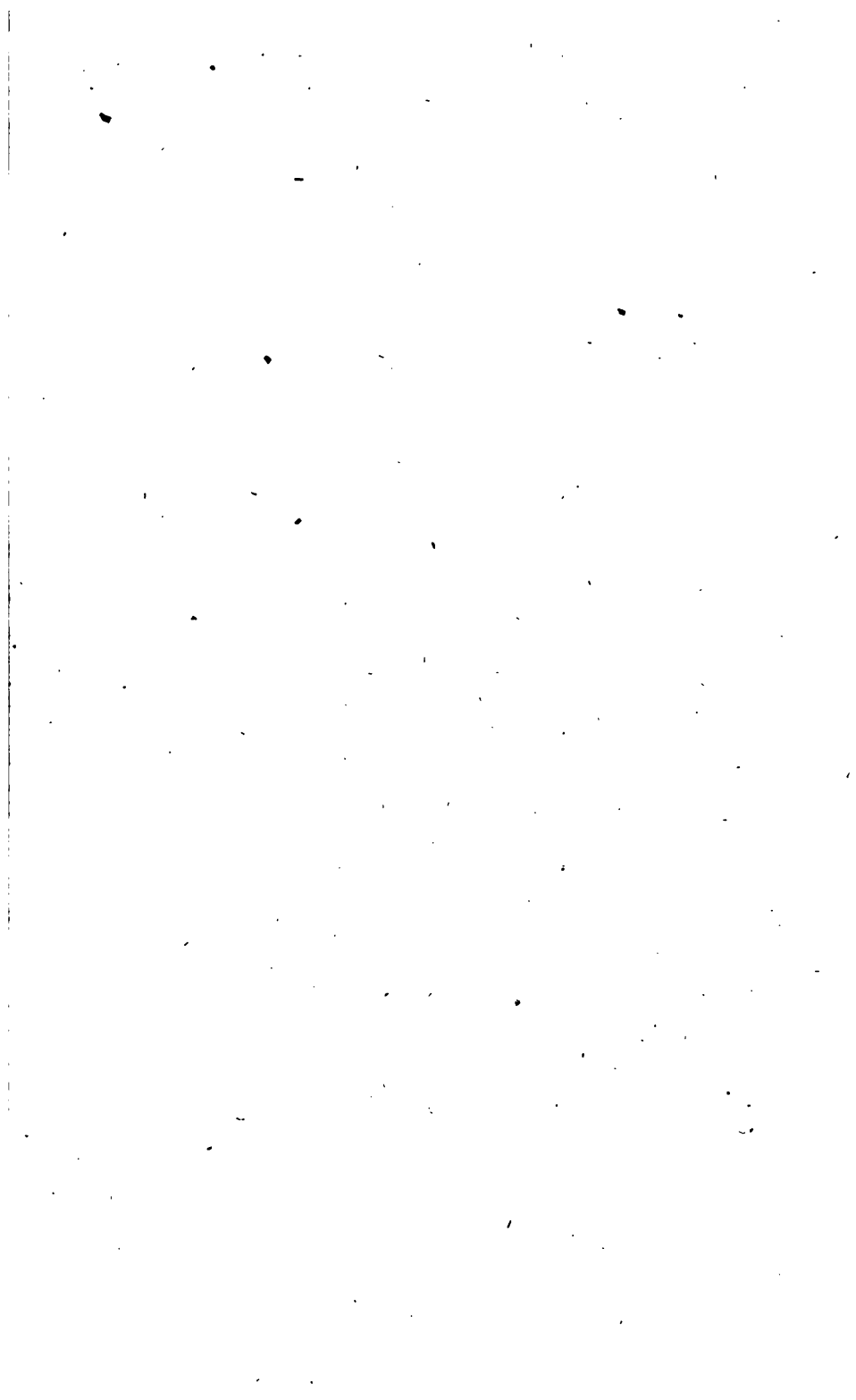


PART II.

AN
ACCOUNT
OF THE
FOREIGN AUTHORS
WHO HAVE WRITTEN ON
HEALTH AND LONGEVITY,
WITH
EXTRACTS FROM THEIR WORKS,
ILLUSTRATING THE OPINIONS THEY HAVE ENTERTAINED
REGARDING THESE INTERESTING SUBJECTS.

VOL. III.

A



AN
ACCOUNT
OF
THE FOREIGN AUTHORS
WHO HAVE WRITTEN ON HEALTH AND LONGEVITY.

NUMBER I.

REGIMEN SANITATIS SALERNI :

OR

THE REGIMENT OF HEALTH, CONTAINING DIRECTIONS
FOR THE LIFE OF MAN.

AMONG the foreign books which have been printed on the subject of health, posterior to the destruction of the Roman power and empire, a work in verse, written about the end of the eleventh century, for the use of Robert, duke of Normandy, or of his father, William the Conqueror, deserves first to be mentioned. It is true that two Jewish physicians had previously drawn up, at the desire of Charles the Great, a treatise called *Tacuin*, or *Tables of Health*, which is published under the name of *Ellucbasem Elimithar*. This book, as M^rKenzie in his History of Health observes, is rarely to be met with, except in public libraries, which is no great loss, being

but a mean, perplexed, and whimsical, performance, and scarce worth taking notice of, but only because it happens to be sometimes quoted by the learned.

The doctrines however of the university of Salerne, are entitled to more notice; for, though it is dangerous, as has been justly remarked, to prescribe rules in verse, on such a delicate subject as health, because the muse may occasionally elevate the *poet* above the reach of salutary precepts, and make him forget the *physician*; yet there are some useful directions in that work, and it is curious to trace the progress of human knowledge, regarding any important art or science, from its rude beginnings, till it reaches some degree of vigour and maturity.

This work is supposed to have been drawn up about the year 1099, by Johannes de Mediolanus, or John of Milan, with the concurrence of the other physicians of Salerne, then reckoned the most celebrated school for medicine in Europe. It was formerly in such high esteem, that it was called "The Flower of Physic;" * and Haller enumerates above twenty editions of it printed at different times, sometimes with, and sometimes without, a commentary. It has been translated into various languages. Into English by Paynell, of which work two editions were printed at London in 1579 and 1607. But the best edition of it in the English language is by Dr. P. Holland, who translated, at the same time, the Commentary of Arnoldus de Villa Nova, which is too voluminous, however, to be reprinted in this compilation, nor does it seem to contain any very important observations.

* Hoc opus optatur quod flos medicinæ vocatur.

THE ORIGINAL LATIN.

DR. HOLLAND'S TRANSLATION.

Anglorum Regi scribit schola tota
Salerni :
Si vis incolumem, si vis te reddere sa-
num,
Curas tolle graveis, irasci crede pro-
fanum :
Parce mero, cœnato parum ; non fit
tibi vanum
Surgere post epulas, somnum fuge
meridianum,
Ne mictum retine, nec comprime
fortiter anum.
Hæc bene si serves, tu longo tempore
vives.

All Salern school thus write to
Englands king,
And for mans health these fit advices
bring.
Shun busie cares, rash angers, which
displease ;
Light supping, little drink, do cause
great ease.
Rise after meat, sleep not at after-
noon,
Water, and natures need, expell them
soon,
Long shalt thou live, if all these well
be done.

Si tibi deficient medici, medici tibi
fiant
Hæc tria : mens hilaris, requies, mo-
derata diæta.

When physick needs, let these thy
doctors be,
Spare dyet, quiet thoughts, heart
mirthfull free.

Lumina manè, manus surgens gelida
lavet unda,
Hæc illac modicum pergat, modicum
sua membra
Extendat, crines peccat, dentes fri-
cet, ista
Confortant cerebrum, confortant cæ-
tera membra.
Lote cale, si prænse, vel i, frigescere
minutè.

Sleep not too long in mornings, early
rise,
And with coole water wash both
hands and eyes,
Walke gently forth, and stretch out
every limbe,
Combe head, rub teeth, to make them
cleane and trim.
The braine and every member else,
these do relieve,
And to all parts continuall comfort
give.
Bathing, keep warm, walk after food
or stand,
Complexions cold, do gentle warmth
command.

THE ORIGINAL LATIN.

Sit brevis, aut nullus, tibi somnus meridians.

Febris, pigrities, capitis dolor, atque catarrhus,

Hæc tibi proveniunt ex somno meridiano.

DR. HOLLAND'S TRANSLATION.

Let little sleep, or none at all suffice,

At afternoon, but waking keep thine eyes.

Such sleep ingenders feavers, headache, rheumes,

Dulnesse of soul, and belcheth up ill fumes,

From forth the stomach. All these harmes ensue,

By sleep at afternoons, beleeve it true.

Si fluat ad pectus, dicatur rheuma catarrhus:

Si ad fauces, branchus: si ad nares, esto coryza.

Rheumes from the breast, ascending through the nose:

Some call catarrhes, some tyfick, some the pose.

Quatuor ex vento veniunt in ventre retento,

Spasmus, hydrops, colica, et vertigo, hoc res probat ipsa.

When wind within the belly you retain,

The body gets by four diseases pain. Cramps, dropfie, collick, giddines of brain.

Ex magna cœna, stomacho fit maxima pœna.

Ut sis nocte levis, sit tibi cœna brevis.

Great suppers put the stomach to great pain,

Sup lightly if good rest you mean to gain.

Tu nunquam comedas, stomachum ni noveris esse

Purgatum, vacuumque cibo, quem fumpseris antè.

Thou should'st not eat untill thy stomach say,

The meat's digested, which did passe that way.

THE ORIGINAL LATIN.

DR. HOLLAND'S TRANSLATION.

Ex desiderio id poteris cognoscere
certo.
Hæc sunt signa tibi, subtilis in ore
dista.

For the true use of appetite to feed,
Is nature's dyet, no more then shall
need.

Perfica, poma, pira, & lac, caseus, &
caro falsa,
Et caro cervina, & leporina, bovina,
caprina,
Atra hæc bile nocent, suntque infir-
mis inimica.

Pearces, apples, peaches, cheefe, and
powdred meat,
Venison, hare, goats flesh, and beef
to eat.
All these breed melancholly, corrupt
the blood,
Therefore not feeding on them, I
hold good.

Ova recentia, vina rubentia, pinguis
jura,
Cum similia pura, naturæ sunt vali-
tura.

Your new layd eggs, brisk, cheetfully
coloured wine,
And good fat' breth in phisick we
define.
To be so wholesome, that their pu-
rity,
Doth nourish nature very soveraign-
ly.

Regula presbyteri jubet hoc pro lege
teneri,
Quod bona sunt ova, candida, longa,
nova.

The priests fair daughter, held it a
law most true,
That eggs be best, when they are
long, white, new.

Nutrit triticum & impinguat, lac,
caseus infans,
Testiculi, porcina caro, cerebella,
medullæ,
Dulcia vina, cibus gustu jucundior,
ova
Sorbilia, & ficus maturæ, uvæque re-
centes.

Bread of red wheat, milk, and new
made cheefe,
Beasts testicles, pork marrow, brain
of these.
Sweet wines, delicious meats, eggs
that are rear,
Over-ripe figs and raisins, these ap-
pear,
To make the body fat, and nourish
nature,
Procuring corpulence, and growth
of stature.

THE ORIGINAL LATIN.

DR. HOLLAND'S TRANSLATION.

Vina probantur odore, sapore, nitore, colore.

Si bona vina cupis, quinque hæc laudantur in illis :

Fortia, formosa, & fragrantia, frigida, frigida.

Smell favour, colour, chearfull, fine,
These are the best proofs of a cup of wine,

In choice of good wine these are ever speaking.

Strength, beauty, fragrance, coolness, sprightly leaping.

Corpora plus augent tibi dulcia, candida vina.

The sweetest wines do most of all revive,

And cheer the spirits, being nutritive,

Si vinum rubrum nimium quandoque bibatur,

Venter stipatur, vox limpida turbificatur.

When too much red wine carelessly we drink,

It binds the belly, makes the voice to shrink.

Allia, ruta, pyra, & raphanus, cum theriaca nux,

Præstant antidotum contra lethale venenum.

I reade, from 'garlick, nuts, hearb, grace, or rew,

Pears, radish-roots, and treacle do ensue :

Such vertuous qualities, that they all serve

As antidotes against poyson to preserve.

Allia qui mane jejuno sumpserit ore,

Hunc ignotarum non lædet potus aquarum,

Nec diversorum mutatio facta locorum.

He that takes garlick early in the morn,

Needs let no drink by him to be forborn,

Diversity of countries he may see,

And well enabled if his mind so bee.

THE ORIGINAL LATIN.

DR. HOLLAND'S TRANSLATION.

Lucidus ac mundus sit ritè habitabilis aër,
Infectus neque sit, nec olens fœtore cloacæ.

Dwell where the ayr is clear, sweet,
wholesome, bright,
Infected with no fumes that hurt the
sight :
For sweetest ayrs do nature most delight.

Si nocturna tibi noceat potatio vini,
Hoc tu mane bibas iterum, & fuerit
medicina.

If overmuch wine hath thy brain offended,
Drink early next morning and its
mended.

Gignit & humores melius vinum meliores,
Si fuerit nigrum, corpus reddet tibi
pigrum.
Vinum sit clarumque, vetus, subtile,
maturum,
Ac bene dilutum, fallens, modèragine sumptum.

The better that the wines in goodness be,
The better humours they beget in thee.
If wine look black, it makes thy body dull.
If it be clear, old, subtile, ripe and full,
Well qualified, leaping, drunk discreetly;
Then with thy body it agrees most sweetly.

Non acidum sapiat cervisia, sit bene clara,
Et granis sit cocta bonis, satis ac veterata.

For drinking beer or ale, thus we advise,
Not to be sharp or sower in any
wife,
Let them be clear, well boyl'd corn
sound and good,
Stale, and not new; all these cause
healthfull blood.

THE ORIGINAL LATIN.

De qua potetur, stomachus non inde
gravetur.

DR. HOLLAND'S TRANSLATION.

Of whatsoere you drink, see no ef-
fence,
Unto the stomach be precured
thence.

Temporibus veris modicum prandere
juberis,
Sed calor æstatis dapibus nocet im-
moderatis,
Autumni fructus caveas ne sint tibi
luctus,
De mensa fume, quantum vis tempo-
re brumæ.

The spring-time doth command our
dinners be,
But light and little, sparing in de-
gree,
The summer season being foultry
hot,
Immoderate feeding should be then
forgot.
The fall of leaf or autumn doth
deny,
Eating much fruit, great harm en-
sues thereby,
But in the winter, cold doth then
require,
Such a full meal, as nature can de-
fire.

Salvia cum ruta faciunt tibi pocula
tuta,
Adde rosæ florem, minuitque poten-
ter amorem.

If in your drink, washt sage is mixt
with rew,
It is most wholesome poyson to sub-
due:
Adde thereto rose flowers if you
feele the heat,
Of Venus to wax wanton, or grow
great.

Nausea non poterit hæc quem vex-
are, marinam
Undam cum vino mixtam qui sump-
serit antè.

Sea-water drunk with wine doth
well defend thee,
If on the sea, casting chance to offend
thee.

THE ORIGINAL LATIN.

Salvia, fal, vinum, piper, allia, petro-
felinum,
Ex his fac falfam, ne fit commixtio
falſa.

DR. HOLLAND'S TRANSLATION.

Sage, falt, and wine, pepper there-
with applyed,
Garlick and parfley, theſe have well
bin tryed :
To make good ſauce for any kind of
meat,
Procuring appetite when men would
eat.

Lotio poſt menſam tibi confert mu-
nera bina,
Mundificat palmas, & lumina reddit
acuta.
Si fore vis ſanus, ablue ſæpe manus.

If thou wilt walk in health, let me
advife,
Oft waſh thy hands, chiefly when
thou doeſt riſe,
From feeding at the table : for there-
by,
Thou gain'ſt two benefits, it clears
the eye,
Gives comfort to the palmes, both
which well tended,
Our health (thereby) the better is
be-friended.

Panis non calidus, nec fit nimis in-
veteratus,
Sed fermentatusque, oculatus, fit be-
nè coctus,
Et falſus modicè, ex granis validis
electus.
Ne comedas cruſtam, choleram quia
gignit aduſtam.
Et panis falſus, fermentatus, benè
coctus.
Purus fit ſanus, non talis fit tibi va-
pus.

Not over cold not hot let be thy
bread,
Hollow and light, but eaſily leaven-
ed,
Sparingly ſalted, and of the pureſt
wheat,
And ſee that cruſts thou do forbear
to eat.
Becaufe that angry choller they be-
get,
Thy bread well bak't, light ſalted,
ſound of grain :
All theſe obſerv'd, thou doſt not eat
in vain.

THE ORIGINAL LATIN.

Est porcina caro sine vino peior ovina,
Si tribuas vinum, fuerit cibus ac medicina.

DR. HOLLAND'S TRANSLATION.

To feed on pork, whether we sup or dine,
Is worse than mutton, if we have no wine :
But drinking wine therewith, it is found food,
And physick for the body very good.

Ilia porcorum bona sunt, mala sunt reliquorum.

The tripes or inwards of the hog is best,
And better then of any other beast.

Impedit urinam mustum, solvit cito ventrem,
Hepatis emphraxim, splenis generat lapidemque.

Sweet wine to urine is a stop or stay,
To loosencfe in the belly, it makes way.
It harmeth both the liver and the spleen,
Causing the stone, as hath by proof bin seen.

Potus aquæ sumptus comedenti incommoda præstat.
Hinc friget stomachus, crudus & inde cibus.

He that drinks water when he feeds on meat,
Doth divers harms unto himself beget :
It cooles the stomach with a crude infesting,
And voids the meat again without digesting.

Sunt nutritivæ multum carnes vitulinae.

Flesh of young calves, or veal is very good,
Quick in digestion nourishing the blood.

THE ORIGINAL LATIN.

DR. HOLLAND'S TRANSLATION.

Sunt bona gallina, & capo, turtur,
sturna, columba.
Quiscula, phasiades, merula, simul
ortygometra,
Perdix, friggellusque, otis, tremulus-
que, amarellus.

The hen, the capon, turtle and the
stare.
The ring-dove, quail, lark, owfell
fat and fair,
The partridge, robin red-breast, cock
of the wood,
The pheasant, heath-cock, morehen,
all are good,
So the wild mallard and green plo-
ver too,
Eaten with wisdom as we ought to
do.

Si pisces molles sunt, magno corpore
tolles.
Si pisces duri, parvi sunt plus vali-
turi.

The fish of soft and biggest body
take,
If hard and little do not them for-
take.

Lucius & perca, & saxatilis, albica,
tencha,
Gornus, plagitia, & cum carpa, gal-
bio, truta.

Pike, perch, and sole, are known
for dainty fish,
The whiting also is a courtly dish :
Tench, gurnard, and a well-grown
plaice in May,
Carp, rochet, trout, these are good
meat I say.

Lucius est piscis rex atque ; tyrannus
aquarum.

Among our fish, the pike is king of
all,
In water none is more tyrannical

Vocibus, anguille prave sunt, si co-
medantur,
Qui physices non ignorant, hæc tes-
tificantur.

Who knows not physick, should be
nice and choice,
In eating eels, because they hurt the
voice :

THE ORIGINAL LATIN.

Cafea, anguilla, nimis obfunt, fi comedantur,
Niti ſæpè bibas, & rebibendo bibas.

DR. HOLLAND'S TRANSLATION.

Both ecles and cheefe without good
ſtore of wine,
Well drunk with them, offends at
any time.

Inter prandendum fit ſæpe parumque
bibendum.
Si ſumas ovum, molle fit, atque novum.

In feeding at our meals ſome doctors
think,
Oft-times, and yet but little, we
ſhould drink.
In eating egges, chufe them are ſoft
and new,
For otherwiſe, great perils may enſue.

Piſum laudandum nunc ſumpſimus
ac reprobandum,
Eſt inflativum cum pellibus atque
nocivum,
Fellibus ablatis ſunt bona piſa fatiſ.

Peaſe may be prays'd, and diſcom-
mended too,
According as their nature is to do.
The huſkes avoyded then the pulſe
is good,
Well nouriſhing not hurtfull to the
blood.
But in the huſks they are gnawing
meat,
And in the ſtomack cauſe inflations
great.

Lac phthiſikeiſ ſanctum caprinum,
poſtque cameli,
Ac nutritivum plus omnibus eſt aſi-
ninum,
Plus nutritivum vaccinum fit, quoque
ovinum.
Adſit ſi febris, caput & doleat, fugi-
endum eſt.

Goats milk, nor camels milk, to drink
is good,
When agues or conſumptions touch
the bloud,
They nourish well. But (beyond
all) ſome ſay,
Milk of an aſſe doth nourish more
than they.
Yet when as head-ach, or hot fevers
fall,
The milk of kine and ſheep are beſt
of all.

THE ORIGINAL LATIN.

Lēnit, & humectat, soluit sine febre
butyrum.

DR. HOLLAND'S TRANSLATION.

Butter doth soften, moisten and
make loose beside,
Those bodies where no fever doth
abide.

Inciditque, lavat, penetrat, mundat
quoque serum.

Whey is incisive washing piercing
too,
Cleansing, and purging where it is
fit to do.

Caseus est gelidus, stipans, crassus,
quoque durus,

Caseus & panis sunt optima fercula
sana.

Si non sunt sani, tunc hunc ne juh-
gito pani.

Cheese is by nature cold, stuffing,
gross and hard :

Yet good with bread, where sickness
is debar'd,

When being sound in health, for
them it's good,

But if not joynd with bread, un-
wholesome food.

Ignari medici me dicunt esse noci-
vum,

Et tamen ignorant cur nocumenta
seram,

Expertis reor esse ratum, quia com-
moditate

Languenti stomacho caseus addit
opem.

Caseus ante cibū cōfert, si defluat
alvus :

Si constipetur, terminet ille dapes.

Qui physicon non ignorant, hæc tes-
tificantur.

Cheese doth apology his own de-
fence,

When they (unkild in physick) urge
pretence

That is hurtfull, yet through igno-
rance :

Know not whereby his hurtfulness
doth chance.

The stomach languishing, cheese doth
releeve,

And (after stuffing cates) great ease
doth give,

A modicum thereof, after all other
food,

By best physicians, is allowed for
good.

THE ORIGINAL LATIN.

Inter prandendum sit sæpe parumque
bibendum.

Ut minus ægrotes, non inter fercula
potes.

DR. HOLLAND'S TRANSLATION.

Often, yet little, drink in dinner
time,

But between meals, you must from
drink decline;

That sickness may in power less
prevail,

Which else (through drinking) sharp-
ly doth assaile.

Ut vites penam de potibus incipe
cœnam.

Physicians much contend about this
text,

If that with sickness thou wouldst
not be vexed.

With drink begin thy supper. Others
say,

Till thou have eaten first, keep drink
away.

The comment therefore yields the
best direction

Of drinking, when we go to our re-
fection.

Post pisces nux sit, post carnes caseus
adfit.

Unica nux prodest, nocet altera : ter-
tia mors est.

Singula post ova, pocula fume nova.

A new laid egge craves a good cup
of wine,

Drunk after it, it will the blood re-
fine.

Nuts after fish, cheese after flesh, is
best,

In both these, they are helpfull to
digest,

One nut doth well, the second doth
offend,

Beware the third, it brings a deadly
end.

THE ORIGINAL LATIN.

DR. HOLLAND'S TRANSLATION.

Adde pyro potum, nux est medicina
veneno.

When we eat pears, boldly we may
drink wine,

Fert pyra nostra pyrus, sine vino sunt
pyra virus.

Nuts against poyson are a medicine.
Pears eaten (without wine) are pe-

Si pyra sunt virus, sit maledicta py-
rus.

rilous,
Because raw pears are counted ve-

Dum coquis, antidotum pyra sunt :
sed cruda venenum.

nemous.
Being boyl'd or bak't, weak stomachs

Cruda gravant stomachum, relevant
sed cocta gravatum.

they do chear,
Because restoratives they then ap-

Post pyra da potum, post pomum
vade cacatum.

peare.
By being raw, the stomach they of-

fend.
But comfort (otherwise) doth them
attend,

Drink after pears, and after apples,
use

The course that nature no way can
refuse.

Si cerasum comedas, tibi confert
grandia dona.

By eating cherries, great good doth
arise,

Expurgat stomachum, nucleus lapi-
dem tibi tollit.

To such as use them, for the learned
wife

Hinc melior toto corpore sanguis in-
est.

Say, that they purge the stomach,
and beside,

The broken stones and kernels have
been tried,

To break the bladder stone, breed
wholesome bloud,

To fat and feed the body they be
good.

Frigida sunt, laxant, multum profunt
tibi pruna.

Prunes cool and loose the body very
kindly,

No way offensive, but to health are
friendly.

THE ORIGINAL LATIN.

Perfica cum musto vobis datur ordine
justo

Sumere, sic est mos nucibus socian-
do racemos.

Paffula non spleni, tussi valet, est bo-
na reni.

DR. HOLLAND'S TRANSLATION.

Must or sweet wine, with peaches we
should drink,

Else harm will happen by them, as
most think,

And shew good reasons why it should
be so.

With dry old nuts a raisin still must
go ;

Because in cooling they are dull and
slow.

Yet raisins hurt the spleen by opila-
tion :

As nuts are divers, and cause inflam-
mation.

Scrophia, tumor, glandes, ficus cata-
plasmati cedunt,

Iunge papaver ei, confraeta foris tra-
hit ossa.

The evil that is tearmed by the
swine,

Under the chin doth to the throat en-
cline ;

Swellings, boyls, kernels, all these
holpen are,

If you a plaister made of figs prepare.

But if the same with poppy mingled
be,

Broke-bones it knits and strengthens
perfectly.

Vermiculos veneremque facit, sed
cuilibet obstat.

Both lice and lust by figs engender-
ed are,

Of those corrupting humours they
prepare.

Multiplicant mictum, ventrem dant
mespila strictum,

Mespila dura placent, sed mollia sunt
meliora.

Medlars do bring very much in-
crease,

And looseness in the belly makes to
cease :

The hardest medlars therein you may
use,

But get to nourish : then the softest
chuse.

REGIMEN SANITATIS SALERNI.

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THE ORIGINAL LATIN.

Provocat urinam multum, citò soluit, & inflat.

DR. HOLLAND'S TRANSLATION.

Must doth provoke much urine, and
some say,
It doth inflate, and quickly scours
away..

Crassos humores nutrit cervisia, vires
Præstat, & augmentat carnem, ge-
neratque cruorem.

Provocat urinam, ventrem quoque
molliat, & inflat.

Frigidat & modicum. Sed plus de-
siccat acetum.

Frigidat, emaceratque, melancholiam
dat, sperma minorat,
Siccos infestat nervos, & pinguis sic-
cat.

By drinking ale or beer grosse hu-
mors grow,
Strength is augmented, blood and
flesh also

Encreaseth dayly, urine they do pro-
cure,

Enflate the belly, as the learn'd as-
sure.

And furthermore, of vinegar, they
say,

Although it drieth, yet it cools his
way

In passage, and it makes one lean
Being received fasting, so I mean,
It causeth melancholy, harms the
feed

Of generation, and doth shaking
breed.

Lean folk it hurteth, drying up their
blood,

And unto fat folks, greatly doth no
good.

Rapa juvat stomachum, novit produ-
cere ventum,

Provocat urinam, præstatque in
dente ruinam.

Si malè cocta datur, tibi torfio sic
generatur.

Turneps do hurt the stomach, breedeth
wind,

Provoketh urine, as by proof we find,
They comfort sight, but yet the teeth
offend,

And gripes into the belly they do
send.

Ventum sæpe rapis, si tu vis vivere
rapis.

Rapes are the best to nourish, so
some say,
And for our urine they do cleanse the
way.

THE ORIGINAL LATIN.

Egeritur tardè cor, concoquitur quo-
que durè.
Sic quoque ventriculus, tamen exte-
riora probantur.
Reddit lingua bonum nutrimentum
medicinæ.
Concocta facilis pulmo est, citò labi-
tur ipse.
Est melius cerebrum gallinæ, quàm
reliquorum.

DR. HOLLAND'S TRANSLATION.

Prescriptions for the inwards of a
beast,
The heart is held but hardly to di-
gest.
The maw is of like nature, slow in
descent,
And therefore is no wholesome nutri-
ment.
The tongue is said to be of good di-
gestion,
And therefore is allow'd in our re-
fection.
The like opinion of the lights we
hold,
Though nature is sometime by them
control'd.
Of brains, a hen's is best of all to eat,
And those of chickens are most whole-
some meat.

Semen feniculi pellit spiracula culi.

Of fenell-seed, our learned physicians
say,
For breaking wind, it makes a ready
way.

Bis duo dat marathrum, febres fugat,
atque venenum,
Et purgat stomachum, lumen quoque
reddit acutum.

Four vertues in the fenell are al-
low'd,
It quails the ague, when it growes to
proud,
Poyson it soon expels, the stomach
cleareth,
Sharpens the sight, and comfortably
cleareth.

THE ORIGINAL LATIN.

DR. HOLLAND'S TRANSLATION.

Emendat visum, stomachum confortat animum.
Copia dulcoris anisi fit melioris.

Anni-seeds for the stomach wholesome are,
And quicknesse of the eye-sight they prepare.
In sweetnesse, goodnesse, look how they exceed,
The better blood, and humours still they breed.

Si error emanat, spodium sumptum cito sanat.

If flux of blood at any time abound,
Spodium doth instantly that flux confound.

Gaudet hepar spodio, mace cor, cerebrum quoque moscho,
Pulmo liquiritia, splen, caput stomachusque galanga.
Vas condimenti præponi debet edenti.
Sal virus refugat, rectè insipidumque saporat.
Non sapit esca probè, quæ datur absque sale.
Urunt res falsæ visum, semenque minorant,
Et generant scabiem, pruritus, sive vigorem.

Spodium the liver worthily doth please,
And mace the heart, if ought do it disease.
Musk is a wondrous comfort to the brain,
And lycoris keeps the lights from any pain.
Gallingale helps the stomach, capers the spleen,
All these are wholesome physick, as I ween.
Concerning sauce that doth our table fit,
Salt is commended best by men of wit.
Poyson it doth resist, makes savoury meat,
Whets on the stomach with desire to eat;
For without salt, our food can yeeld no taste,
Yet over-salted, meats are bad repast.
They inflate the face, diminish natures seed,
Itch, scabs, and pusses, they do daily breed.

THE ORIGINAL LATIN.

Sal primò poni debet, primoque re-
poni,
Non bene mensa tibi ponitur absque
sale.

DR. HOLLAND'S TRANSLATION.

Salt should be first upon the table
set,
And last tak'e off, when we have
done with meat.

Hi fervore vigent tres, falsus, ama-
rus, acutus.
Alget acetosus, sic stipans, ponticus
atque
Unctus, & insipidus, dulcis dat tempe-
ramentum.

Three kind of taits do soon the
body heat,
Salt, bitter, sharp, and divers harms
beget.
Three other favours cool in mode-
rate kind,
Tart, stipticall, and pontick, as I
find.
Three more, unsavory, unctuous,
and sweet,
Nor heat, nor cool, and therefore
held most meet.

Bis duo vipera facit, mundat dentes,
dat acutum
Visum : quod minus est implet, mi-
nuit quod abundat.

Four benefits come by our sops in
wine,
They purge the teeth, they make
them clean and fine.
They sharp the sight, cause good di-
gestion,
Remove superfluous things, that
breed infection.

Omnibus adfectam jubeo servare dia-
tam.
Quod sic esse probo, ni sit mutare
necesse.
Hippocrates testis, quoniam sequitur
mala pestis.

To keep a customary dyet, is the best,
Both for our health, and for mild na-
tures rest.
Custom observ'd, we may not light-
ly leave,
A dietarie custome will receive

THE ORIGINAL LATIN.

DR. HOLLAND'S TRANSLATION.

Fortior hæc meta est medicinæ, certa
diæta,
Quam si non cures, fatuæ regis, &
malæ curas.

No giddy imperfection. Grave Hy-
pocrates
Gives good advice, for health and
natures ease.
It is a better way to cure by dyet,
Then lavishnesse, which brings all
out of quiet.
He that is carelesse for his proper good,
By such a one, no danger is withstood.

Quale, quid, & quando, quantum,
quoties, ubi, recta
Debent hæc medico in victus ratione
notari,
Ne male conveniens ingrediatur iter.

Six things in dyet should observed be,
First, to respect the food in quality.
Next, what it is in substance; and
withall,
What time for ministration best doth
fall.
Fourthly, the quantity requires a
care;
Fifthly, how oft we should the same
prepare.
Lastly, the place is not amiss to
know,
And where such dyet best we may
bestow.

Jus caulis soluit, cujus substantia strin-
git,
Utraque quando datur, venter laxare
paratur.

Broth made of cole-worts doth both
loose and bind,
According as their nature is inclin'd:
Yet if the broth and substance both
you take,
Digestion the more sollid they will
make.

Dixerunt maluam veteres, quod mol-
liat aluum.
Hujus radices rasæ soluunt tibi fæces
Vuluam moverunt, & fluxum sæpe
dederunt.

Malowes the belly much do mollifie,
And their roots shaven, phylick doth
apply:
For sound purgation; hereof I am sure,
The menstruous flux in women they
procure.

THE ORIGINAL LATIN.

Mentitur mentha, si sit depellere len-
ta.

Ventris lumbricos, stomachi vermes-
que nocivos.

DR. HOLLAND'S TRANSLATION.

Mint were bely'd, if it should want
the might,

The stomach, worms, and belly to
kill quite.

As worm-wood juyce, it works in
operation,

And is to health a soveraign prefer-
vation.

Cur moriatur homo, cui salvia crescit
in horto?

Contra vim mortis non est medica-
men in hortis.

Salvia confortat nervos, manuumque
tremorem

Tollit, & ejus ope febris acuta fugit.

Salvia, castoriumque, lavendula, pri-
mula veris.

Nasturtium Athanasia hæc sanant
paralytica membra,

Salvia salvatrix naturæ conciliatrix.

Why should man dy (so doth the
sentence say,)

When sage grows in his garden day
by day?

And yet all garden-phisick not pre-
vailles,

When deaths stern power our chiefest
health affails,

Sage comforteth the nerves both
sweet and kindly,

The pacific-shaking hands it helpeth
friendly.

His power is soveraign gainst an ague
fit,

Sage and the beaver stone, by learn-
ed writ.

Lavender and the prime-rose of the
spring,

Tansy and water-cresses comfort
bring,

To all such members as the palfie
shake,

When in the very greatest kind they
quake.

Sage doth both counsell and keep na-
ture sound,

Where sage then groweth, happy is
the ground.

THE ORIGINAL LATIN.

DR. HOLLAND'S TRANSLATION.

Nobilitas rutæ hæc, quod lumina
reddat acuta.

Needs must we call rew noble, by
due right,

Auxilio rutæ vir quippè videbis acu-
tâ.

Because it clears and perfecteth the
sight.

Cruda comesta recens oculos caligine
purgat.

Carnall desires (in men) it doth ap-
pease,

Ruta viris minuit venetem, mulieri-
bus addit.

But yet to women giveth no such
ease.

Ruta facit castum, dat lumen, & in-
gerit astum.

Rew-water sprinkled in the house,
kills all the fleas,

Cocta & ruta facit de pulicibus loca
tuta.

Rew, as it causeth chastity, it whets
the wit,

And for the eye-sight always counted
fit.

De cepis medici non consentire vi-
dentur,

Onyons (in physick) winneth no con-
sent,

Fellitis non esse bonas, ait ipse Gale-
nus,

To cholerick folke, they are no nutri-
ment

Phlegmaticis verò multum putat esse
salubreis.

By Galens rule. Such as flegmatick
are,

Non modicum sanas Asclepius adserit
illas,

A stomach good in them they do pre-
pare.

Praefertim stomacho, pulchrumque
creare colorem.

Weak appetites they comfort; and
the face,

Contritæ cepis loca denudata capillis
Sæpe fricans, capitis poteris reparare
decorem.

With cheerfull colour evermore they
grace.

And when the head is naked left of
hair,

Onyons (being sod or stamp'd) again
repair.

Appositas perhibent morsus curare
caninos,

A mad dogs byting may recured be,
With onyons, hony, vinegar, these

Si tritæ cum melle prius fuerint et
aceto.

threc.

THE ORIGINAL LATIN.

Est modicum granum, siccum, calidumque sinapi,
Dat lachrymas, purgatque caput, tollitque venenum.

DR. HOLLAND'S TRANSLATION.

Though mustard-seed is held the smallest grain,
His powerfull heat and strength is not in vain.
By causing tears, it purges well the brain,
And takes away infecting poysonous pain.

Crapula discutitur, capitis dolor, atque
gravedo,
Purpuream violam dicunt curare caducos.

The heavy head-ach, and that irksome pain,
Which drunken surfeiting doth much constrain:
The smell of violets doth soon allay,
And cures the falling-sickneſſe, as some ſay.

Agris dat ſomnum, vomitum quoque tollit & uſum.
Illi ſemen colicis cum melle medetur,
Et tuſſim veterem curat ſi ſæpe bibatur:
Frigus pulmonis pellit, ventriſque tumorem.
Omnibus & morbis ea ſubvenit articularum.

The nettle ſoveraign is in his degree,
It cauſeth ſleep in bodies ſick that be.
Caſting or vomiting it clears away,
And flegme that hurteth nature day by day.
An ancient cough it quickly doth prevent,
For flegme thereby is ſoon diſpatcht and ſpent.
It cures the chollick, a moſt cruell pain,
Diſeaſes in the joynts it doth reſtrain.
Cold in the lights, the bellies tumors too,
And other harms the nettle doth undo.
Some ſay beſide, that it doth cure the gout,
Though divers doctors thereof make ſome doubt.

THE ORIGINAL LATIN.

DR. HOLLAND'S TRANSLATION.

*Hyſſopus purgans herba eſt à pectore
phlegma,
Ad pulmonis opus cum melle co-
quenda jugata.
Vultibus eximium fertur præſtare
colorem.*

Hyſop a purging herb is held to be,
And ſlegme from forth the breaſt
it ſendeth free.
Being ſod with honey, then it com-
fort ſends
The ſtomack, and the lungs it much
befriends.
Purgeſh the lights from ſlegme, and
addes a grace,
By a moſt clear complexion to the
face.

*Appoſitum cancriſ tritum cum melle
medetur.
Cum vino potum lateris ſedare dolo-
rem
Sæpe ſolet, tritam ſi neſtis deſuper
herbam,
Sæpe ſolet vomitum, ventremque te-
nere ſolutum.*

Chervill or cinquefoyl, call it which
you will,
Being ſteeped with honey doth a can-
ker kill,
Drink it with wine, the belly-ach it
healeth,
And doth aſſwage inflation where it
ſwelleth.
Laſtly, when laſk or vomit ſhall op-
preſſe,
The power thereof doth heat, and
makes to ceaſe.

*Enula campana reddit præcordia ſa-
na.
Cum ſucco rutæ ſuccus ſi ſumitur
ejus,
Affirmant ruptis quòd profit potio
talis.*

Of enula campana thus we ſay,
It cheers the heart, expelling grief
away.
The juyce of rew, and this ſo well
agree,
That they are good for ſuch as bur-
ſten be.
Wine made thereof doth clearly
cleaſe the breaſt,
Expelleth wind, and helps well to di-
geſt.

THE ORIGINAL LATIN.

Cum vino nigram choleram potata
repellit,
Appositam veterem dicant fedare
podagram.

DR. HOLLAND'S TRANSLATION.

Hill-wort, or peneriall steeped in
wine,
Purgeth black choller, as the learn'd
divine.
Beside, our elders say, and make no
doubt,
That it melts flegme, and cleerly
cures the gowt.

Illius succus crines retinere fluentes
Illitus adferitur, dentisque levare do-
lorem.
Lichenas succus purgat cum melle
perunctus.

Of water-creffes, most opinions say,
Hair they retain, when' it doth fall
away.
The tooth-ach that tormenteth grie-
vously,
They give thereto a present remedy:
They cleanse all scales that cleave
unto the skin,
If honey to the oyntment you put in.

Cæcatis pullis hac lumina mater hi-
rundo
(Plinius ut scripsit) quamvis sint eru-
ta, reddit.

Young swallows that are blind, and
lack their sight,
The damme (by celendine) doth give
them light.
Therefore (with Plinie) we may
boldly say,
Celendine for the sight is good al-
way.

Auribus infusus vermes succus necat
ejus.
Cortex verrucas in aceto cocta resol-
vit.
Hujus flos sumptus in aqua frigef-
cere cogit
Instinctus veneris cunctos acres fl-
mulantes.
Et sic deficcet, ut nulla creatio fiat.

The juyce of willow put into the ear,
Doth kill the worms which are en-
gendred there.
The rind of willow sod in vinegar,
For taking warts away, the most pre-
fer.
Let teeming-women cast willow-
flowrs away,
Because they hinder child-birth with
delay.

THE ORIGINAL LATIN.

DR. HOLLAND'S TRANSLATION.

Confortare crocum dixerunt exhi-
rando,
Artus defectos reficitque, hepar re-
paratque.

Saffron doth glad the heart being
sick and ill,
But yet too much endangereth to
kill,
Defective members it doth comfort
kindly:
And next, restores the liver very
friendly.

Reddit fecundus mansum per sæpe
puellas,
Manantemque potes naris retinere
cruorem,
Ungas si nares intus medicamine
tali.

Leeks if their property is not belyde:
To make young women fruitful,
hath been tryde.
Beside, they stint the bleeding at the
nose:
In greatest violence, as some suppose.

Quod piper est nigrum, non est dif-
solvere pigrum.
Phlegmata purgabit, concoctricem-
que juvabit.
Leucopiper stomacho prodest, tussi-
que, dolorique
Utile, præveniet motum, febrisque
rigorem.

Black pepper in dissolving is not slow,
But quickly purgeth flegma, as
many know,
Beside, 't is very good to help diges-
tion,
When other things may fail that are
in question.
White pepper, to the stomach com-
fort sends,
And many ways it from the cough
defends.
For divers griefes it yeeldeth good
prevention,
And with a fever stands in stout
contention.

THE ORIGINAL LATIN.

Et mox post escam dormire, nimisque
moveri,
Ista gravare solent auditus, ebrietas-
que.

DR. HOLLAND'S TRANSLATION.

If after meat we fall to sudden sleep,
Our food from all digestion it doth
keep.
Over-much moving is hurtful too,
And drunkenness doth most of all
undo.
In all these, let us use discreet for-
bearing,
Being enemies that do offend our
hearing.

Motus, longa fames, vomitus, percus-
sio, casus,
Ebrietas, frigus, tinnitum causat in
aure.

Long-fasting, vomiting, and sudden
fear,
Are hurtfull to the organ of the ear.
Blowes, falls, and drunkenness are
even as ill,
And is so cold, beleeve me if you will.
Such as would noises in the ear pre-
vent,
To shun all these, think it good do-
cument.

Balneæ, vine, Venus, ventus, piper,
allia, fumus,
Porrum cum cepis, faba, lens, sicutus-
que, sinapi,

Bathing, wine, women, boystrous
wind,
To harm the eye-sight always are
inclin'd.
The like doth pepper, garlick, dust-
ing smoak,
Leeks, onyons, lentils, draw the sight
aslope,
And dims it as beans do. Such as use
weeping,
I would not have mine eyes in their
moist keeping.
Mustard, and gazing much against
the sun,
The sight thereby is utterly undone.

THE ORIGINAL LATIN.

Sol, coitusque, ignis, labor iclus, ac-
mina, pulvis,
Ista nocent oculis, sed vigilare magia.

DR. HOLLAND'S TRANSLATION.

The violence of lust in hot desire,
Spoyles them outright, and looking
on the fire.

Extremity of labour hurts the eye,
And the least blows, blood-shot it in-
stantly.

Tart and sharp sauces needs offend
them must,

As also walking in a windie dust.

The lust is too much watching; these,
believe me,

Avoid, and then thine eye-sight will
not grieve thee.

Feniculus, verbenæ, rosa, & chelido-
nia, ruta,
Subveniunt oculis dira caligine pre-
fis.
Nam ex istis aqua fit, quæ lumina
reddit acuta.

Of fenell, vervein, roses, celendine,
With rew among them, water filled
fine,

They are most wholesome for to clear
the eyen.

Sic dentes serua, porrorum collige
grana.

Ure cum hyoscyamo simul, utere ju-
re decenti.

Per sic chonion & sumum cape dente
remotum.

To cure the tooth-ach, take the seed
of leeks,

When that fell pain annoyes and
swels the cheeks:

But seed of hen-bane must be mixt
among.

And burn them both to make the
smoke more strong.

Hold thy mouth ore, and so receive
the fume,

The pain it flakes, and worms in
teeth consume,

If through a tunnell you the smoke
assume.

THE ORIGINAL LATIN.

*Max, olcum, frigus capitique, angustiaque, potus,
Ac potum crudum faciunt hominem
fore rancum.*

DR. HOLLAND'S TRANSLATION.

Nuts, oyl, and cold, which strikes in-
to the head,
Eeles, and raw apples, drinking late
towards bed;
By all these hoarseness in the voyce
is bred.

• *Jejuna, vigila, caleas dape, tuque la-
bora,
Inspira calidum, modicum bibe, com-
prime flatum.
Hæc bene tu serva, si vis depellere
rheuma.
Si fluat ad pectus, dicatur rheuma ca-
tarrhus:
Si ad fauces, branchos, si ad naris
est coryza.*

Use fasting, watchings, if the rheum
possesse thee,
Hot meats and drinks avoyd, they
not redresse thee,
Labour thy body, and thy breath re-
strain,
Inspire warm air, if the catharre do
pain.
Beware of drinking much, it doth
offend,
These (gainst all rheumes) to thee I
do commend.
To know these rheumes, this is an
observation,
If to the brest they flow in exalta-
tion.
Th'are call'd catharrs. But running
through the nose,
Its called corisa: others say, the pose.
When by the neck it doth it self con-
vey,
They tearm it branchus, as phyfi-
tians say.

*Auripigmentum, sulphur miscere me-
mento,*

Auripigmentum, which some arse-
nick call,
Remember to mixe brimstone there-
withall,

THE ORIGINAL LATIN.

His decet apponi calcem, conjege sa-
poni,
Quatuor hæc misce, commixtis wa-
tuor istis
Fistula curatur, quater ex his si re-
pleatur.

DR. HOLLAND'S TRANSLATION.

White lime and sope; these four by
way of plaister,
Are able any fistula to maister,
Observe these four then, if thou
wouldst be cur'd,
Many (thereby) of help have been
assur'd.

Ossibus ex denis, bis centenisque no-
venis,
Constat homo, denis bis dentibus &
duodenis,
Ex tercentenis decies sex quinqueque
venis.

The bones, the teeth, and veyns that
are in man,
The author here doth number, as he
can.
Two hundred nineteen bones agree
some men,
Two hundred forty-eight, saith Avi-
cen.
Numbring the teeth, some, two and
thirty hold,
Yet four of them by others are con-
troll.
Because some lack those teeth stand
last behind.
In child-hood. Others till their
greatest age they find.
The grinders, and duales, quadrupli,
And them above, beneath called Ca-
nini,
That grind, that cut, and hardest
things do break,
And those cal'd Sensus. Nature these
bespeak
To grind mans food. The veyns in
man we count,
Three hundred sixty-five, which few
surmount.

THE ORIGINAL LATIN.

Quatuor humores in humane corpore
constant,
Sanguis cum cholera, phlegma melan-
cholia.
Terra melancholicis, aqua confertur
pituitis,
Aër sanguineis, ignea vis cholera.

DR. HOLLAND'S TRANSLATION.

Four humours in mans body always
are,
Bloud, choler, flegme, melancholy.
And compare
These, unto these four severall ele-
ments,
Whereof they are continuall presi-
dents.
To earth melancholy, to water
flegme,
The ayr to bloud, choler to fire ex-
tream.

Humidus est sanguis, calet & vis aëris
illi.
Alget phlegma, humectatque, illi sic co-
pia aquosa est.
Sicca calet cholera, & sic igni fit simi-
lata.
Frigens sicca melancholia est, terre
adsumilata.

The bloud is hot and moyst, like to
the ayr,
And therefore therewith carryeth
best compare.
Flegme cold and moyst, even in his
chiefest matter,
Bearing his best resemblance with
the water.
Sullen is melancholy, cold and dry.
And to the earth it self doth best apply,
But choler being hot and dry, desires
To meet (he cares not) with how
many fires.

Natura pingues isti sunt atque joca-
tes,
Rumoresque novos cupiunt audire
frequenter.
Hos Venus & Bacchus delectant, fer-
cula, risus.

To sanguine men, nature hath much
commended,
First, with a jocond spirit they are
attended.
Desireous to hear tales and novelties,
Women, nor wine, they gladly not
despise.

THE ORIGINAL LATIN.

DR. HOLLAND'S TRANSLATION.

Et facit hos hilares, & dulcia verba
lequentes.

Omnibus hi studiis habiles sunt, &
magis apti.

Qualibet ex causa non hos facile exci-
tat ira.

Largus, amans, hilaris, ridens, rubei-
que coloria.

Cantans, carnosus, satis audax, atque
benignus.

Their looks are chearfull and their
language sweet,

For any study they are prone and
meet.

No common matter kindles anger's
fire,

Contentious company they not de-
fire.

They are liberall loving mirthfull:
and benigne,

Fleshy and fat, capring and apt to
sing.

No muddy countenance, but smiling
chear,

And bold enough, as causes may ap-
pear.

Phlegma dabit vires modicas, latos-
que, brevesque.

Phlegma facit pinguis, sanguis red-
dit mediocres.

Ocia non studio tradunt, sed corpora
somno.

Sensus hebes, tardus motus pigritia
somens.

Hic somnolentus, piger, & sputamine
plenus.

Est huic sensus hebes, pinguis, facie
color albus.

Men that be flegmatick, are weak of
nature,

Most commonly of thick and stubbed
stature.

And fatnesse overtaketh them amain,
For they are slothfull, and can take
no pain.

Their senses are but dull, shallow
and slow,

Much given to sleep, whence can no
goodness grow,

They often speet: yet natures kind
direction,

Hath blest them with a competent
complexion.

Est humor cholerae, qui competit im-
petuosus,

Hoc genus est hominum cupiens
præcellere cunctis.

Choler, is such an humor as aspires,
With most impetuous, insolent de-
sires,

He covets to excell all other men,

THE ORIGINAL LATIN.

Hi leviter discunt, multum comedunt, citò crescunt.
 Inde & magnanimi sunt, largi, summa petentes.
 Hirfutus, fallax, irascens, prodigus, audax.
 Astutus, gracilis, ficcus, croceique coloris.

DR. HOLLAND'S TRANSLATION.

His mind outsteps beyond a kingdom's ken.
 Lightly he learns, eats much, and soon grows tall,
 Magnanimous, and somewhat prodigal.
 Soon mov'd to anger though upon no cause,
 His own will is his reasons largest laws.
 Subtile and crafty, sel'ome speaking fair,
 A wasting unthrift, overgrown with hair.
 Bold-spirited, and yet but lean and dry,
 His skin most usual of a saffron die.

Restat adhuc tristes cholerae substantia nigrae,
 Quae reddit praeos, pertristes, pauciloquentes.
 Hi vigilant studiis, nec mens est dedita somno,
 Servant propositum, sibi nil reputant fore tutum.
 Invidus, & tristis, cupidus, dextraeque tenacis,

Where melancholly bears the powerful sway,
 To desperation it inclines alway.
 The melancholy spirit is dark and sad,
 Sullen, talks little, and his sleeps are bad.
 For dreadful dreams do very much affright them,
 Start out of sleep, and nothing can delight them.
 Their memory is good, and purposeful sure,
 All solitary walks they best endure.
 Because to study they are still inclin'd,
 And being alone, it fitteth best their mind.
 Simple, and yet deceitfull, not bounteous.
 But very sparing, doubtfull, suspicious,

THE ORIGINAL LATIN.

Non expers fraudis, timidus, luteique
coloris.

DR. HOLLAND'S TRANSLATION.

Earthly and heavy looks: By all
opinion,
Here melancholly holds his sole do-
minion.

Hi sunt humores, qui præstant cui-
que colores.

Omnibus in rebus ex phlegmate fit
color albus.

Sanguine fit rubeus, cholera rubea
quoque rufus.

Si peccet sanguis, facies rubet, extat
ocellus,

Infantur genæ, corpus nimiumque
gravatur,

Est pulsusque frequens, plenus, mol-
lis, dolor ingens,

Inprimis frontis, fit constipatio ven-
tris,

Siccaque lingua, fitis, sunt somnia
plena rubore,

Dulcor adeft sputi, sunt acria dulcia
queque.

The humours that complexion do
extend,

And colour in our bodies, thus they
lend.

To him is phlegmatick, a colour
white:

Brownish and tawaine, under cholers
might.

The melancholy man is pale as earth,
The sanguine ruddy, ever full of

mirth,
Yet where the sanguine doth too
much exceed,

These inconveniences thereby do
breed.

The blood ascends too proudly to the
face,

Shoots forth the eyes beyond their
wonted place.

And makes them swell. The body
lumpish grows,

The pulse beats thick, by vapours
them inclose,

The head will ache, and costiveness
ensues,

The tongue is dry and rough, can
tell no news.

Extremity of thirst, caus'd through
great heat,

And bloody coloured dreams, which
make men sweat.

THE ORIGINAL LATIN.

Accusat cholera dextrâ dolor, aspe-
ra lingua,
Tinnitus, vomitusque frequens, vigi-
lantia multa.
Multa fitis, pinguisque egestio, tor-
mina ventris.
Nausea fit, morsus cordis, languescit
orexia.
Pulsus adest gracilis, durus, veloxque,
calescens.
Aret, amarescitque, incendia somnia
flagit.

DR. HOLLAND'S TRANSLATION.

Where choler rules too much, these
signs will shew,
The tongue grows sharp and rough,
in speaking slow.
More wakefulness then needs, ting-
lings in the ear,
Unwonted vomits, hatefull they ap-
pear.
Great thirst, the excrements do quick-
ly void,
The stomach is too nice, as over-cloid.
The heart is full of gripes, and ex-
tream heat
Compels the pulse impatiently to
beat.
Bitter and sour our spittle then will
be,
And in our dreams, strange fires we
seem to see.

Phlegma supergrediens proprias in
corpore leges,
Os facit insipidum, fastidia crebra,
salivas.
Costarum, stomachi, simul occipitis-
que dolores.
Pulsus adest rarus, tardus, mollis,
quoque insans,
Præcedit fallax phantasmata somnus
aquosa.

Where flegme superabounds, these
signs will tell,
The mouth distastful, nothing can re-
lish well,
And yet with moisture over-floweth
still,
Which makes the stomach very sick
and ill.
The sides will ache, as if they beaten
were,
Loathsome will all our meat to us
appear.
The pulse beats seldom. The sto-
mach and the head,
With gripes and pangues do seem as
they were dead.
Our sleeps are troublous, and when
we dream,
Of brooks and waters, then we see
the stream.

THE ORIGINAL LATIN.

Humorum pleno dum sax in corpore
regnat,
Nigra cutis, durus pulsus, tenuisque
urina.
Sollicitudo, timor, tristitia, somnia
tetra.
Coacescunt ructus, sapor & sputami-
nis æquæ,
Levaeque præcipue tinnit vel sibilat
auria.

DR. HOLLAND'S TRANSLATION.

When melancholly in the body reigns;
It doth indanger many dreadful pains.
It fills it with corrupting filthiness,
Makes the skin look of blackish ful-
somes.
The pulse beats hard, the urin weak
and thin,
Sollicitude, fear, sadness, sleep it
drowneth in,
It raises bitter belches, breeds much
rheum,
And in the ear oft breeds a ting-
ling tune.

Denu septenus vix phlebotomon pe-
tit annus.
Spiritus uberiorque exit per phlebbo-
tomias,
Spiritus ex potu vini mox multiplica-
tur,
Humorumque cibo damnum lente re-
paratur.
Lumina clarificat, syncerat phlebbo-
tomias
Mentes & cerebrum, calidas facit
esse medullas.
Viscera purgabit, stomachum, ven-
tremque coercet,
Puros dat sensus, dat somnum, tædia
tollit.

A seventeen years of age, safely we
may,
Let youthfull bodies blood, the learn-
ed say.
The spirits are restored by letting
blood,
And to encrease them, drinking wine
is good.
After blood-letting, little good they
gain
By present eating meat, that is but
vain.
Phlebothomy doth purge and clear
the sight.
Cleanseth the brain, and makes the
marrow right.
The stomach and the belly it doth
clear,
And purge the entrails thoroughly
every year.
It sharpens wit, and doth induce to
sleep,
And from the heart all painfull grief
doth keep.

THE ORIGINAL LATIN.

Auditus, vocem, vires producit &
auget.

DR. HOLLAND'S TRANSLATION.

It comforts hearing, and relieves the
voice,
Augmenting strength, wherein the
most rejoyce.

Tres infunt istis, Maius, September,
Aprilis,

Et sunt lunares, sunt velut hydra
dica.

Prima dies primi, postremaque poste-
riorum,

Nec sanguis minui, nec carnibus anse-
ris uti.

Sit senium atque inventa licet, si san-
guis abundat,

Omni mense probè confert incisio ve-
næ.

Hic sunt tres menses, Maius, Septem-
ber, Aprilis,

In quibus cunctas, ut longo tempore
vivas.

Three speciall moneths, our text doth
here remember,

For letting-bloud, Aprill, May, and
September.

The moon rules most these moneths,
yet certain days,

Some do deny, and other some dis-
praise

The first of May, and the last of
Aprill,

As also of September they hold ill.

Days of these moneths they do forbid
to bleed,

And think it dangerous on a goose to
feed.

But this is idle, for these moneths are
good.

And for our health in these to let our
bloud.

For old or young if bloud abounding
be,

All moneths it may be done advised-
ly.

If length of days and health you do
desire,

These are the moneths that bleeding
best require.

Frigida natura, & frigens regio, dolor
ingens,

A cold complexion, and a chilly ayr,
Aches, or ingreames that to inflame
prepare,

THE ORIGINAL LATIN.

Balnea post coitum, minor ætas, at-
que senilis,
Morbis prolixus, repletio potus &
cæca,
Si fragilis, vel subtilis sensus stoma-
chi sit.
Et fastiditi tibi non sunt phleboto-
mandi.

DR. HOLLAND'S TRANSLATION.

Bathing, and wanting dallying in
that sport,
Where Venus most delighteth to re-
sort,
Too young, or else too old, a long
disease,
Eating or drinking, nature to dis-
please.
Sea-sick feeling, when the stomachs
weak,
And empty veins, that loathingly do
speak.
All these forbid blood-letting, and
advise,
Not then to deal therewith in any
wise.

Hæc facienda tibi, quando vis phleb-
otomari,
Vel quando minuis, fueris vel quan-
do minutus.
Unctio, sive lavacrum, & potus, fas-
cia, motus,
Debent non fragili tibi singula men-
te teneri.

What should we do when we be
bleeding go,
These few instructions following
will show.
Before and after, unction will do well,
Lest the incision, or the vein should
swell.
Yet unction (without wine) is not
so good,
It prevents fawning, and begets new
blood.
Bathing is wholesome, in divers times
observed.
And linnen cloths ought well to be
reserved.
After blood-letting, be discreet in
walking,
And trouble not the brain with too
much talking.

THE ORIGINAL LATIN.

Exhilarat tristitia, iratos placat amantia
 Ne sint amantes, phlebotomia facit.

DR. HOLLAND'S TRANSLATION.

Bleeding removes sad motions from
 the heart,
 And wagemeth anger, being too malle-
 part.
 And those distempered fits procur'd
 by love,
 Bloud-letting gently doth them all
 remove.

Fac plagam largam mediocriter, ut
 citò fumus
 Excant uberior, liberiusque cruor.

The orifice (or as some say) incision,
 When as for bleeding you do make
 provision,
 Ought to be large, the better to con-
 vey
 Gross blood, and fumes which issue
 forth that way.
 Gross humors and gross blood must
 needs have vent,
 In cold or hottest times by good con-
 sent.

Sanguine subtracto, sex horis est vi-
 gilandum,
 Ne somni fumus lædat sensibile cor-
 pus.
 Ne nervum lædas, non sit tibi plaga
 profunda.
 Sanguine purgatus nec carpas præti-
 nus efca.

When blood is come away, ye must
 be sure,
 Six hours after watchfull to endure:
 Least sleep raise fumes, or turning on
 that arm,
 Impostumes breed, by doing it least
 harm.
 The nerves, and sinews, arteries also,
 Offend not, if in health you mean to
 go.
 The blood thus purg'd, you instantly
 may eat:
 So that the humors be in quiet set.

THE ORIGINAL LATIN.

Gmnia de lacte vitabis ritè minutus.
Et vitet potum phlebotomatus ho-
mo.

Frigida vitabit, quia sunt inimica mi-
nutis,

Interdictus eritque minutis nobilis
aër,

Spiritus exultatque minutis luce per-
suras,

Omnibus apta quies, & motus sæpe
nocivus.

DR. HOLLAND'S TRANSLATION.

Shun milk and white meats, when
we are let blood,

Because (at such times) they are
never good.

And drinking then perforce we
should refrain,

With undigested drink ne're fill a
vein.

Cold and cold ayr, with all cold
things beside,

Are then our enemies, by proof well
tryed.

Cloudy and troubled ayrs are like-
wise ill,

With melancholy bloud the veyne
they fill,

Too stirring motion, or excessive la-
bour,

Avoid, and with soft ease the body
favour.

Principiò minuas in acutis, perper-
acutis,

Ætatis mediæ multum de sanguine
tolle.

Sit puer atque senex tollet uterque
parum.

Ver tollat duplam, reliquum tempus
tibi simplum.

In the beginning of a sharp disease,
Then letting bloud is good, if you so
please.

The middle age doth favour bleeding
best,

Children and aged folks may let it
rest, -

Or take but little from them. In the
spring,

A double loss of bloud no hurtfull
thing,

At other times, to take but indiffer-
ently,

And still let good advice keep com-
pany.

THE ORIGINAL LATIN.

Ver, æstas dextras autumnus hyemf-
que finiftras.

Quatuor hæc membra, hepar, pes,
cepha, cor, evacuanda.

Æstas hepar habet, ver, cor, sicquæ
ordo fequetur.

DR. HOLLAND'S TRANSLATION.

Spring-time and summer, if we in-
tend to bleed,

Veins on the right fide do require as
need.

Autumn and winter, they the left
fide crave,

In arm, or foot, as they beft like to
have.

The head, heart, foot, and liver, all
theſe four,

Emptying require themſelves beft to
reflore.

The heart calls for the ſpring, ſum-
mer the liver,

Order unto the reſt is a due giver.

Ex ſalvatella tibi plurima dona mi-
nuta,

Splenem, hepar, pectus, vocem, præ-
cordia purgat.

Innaturalcm tollit de corde dolorem.

Salvatella, the opening of that veyn,
In any man five benefits doth gain.

The liver it doth purge from all of-
fence,

And from the ſplene commands an-
noyance thence.

Preserves the ſtomacks mouth, and
clears the breſt,

And keeps the voyce from being by
harms oppreſt.

Si capitis dolor eſt ex potu, lymphæ
bibatur,

Ex portu nimio nam febris acuta
creatur.

Si vertex capitis, vel frons æſtu tribu-
lentur,

Tempora, fronsquæ ſimul moderatè
ſæpe fricentur,

Morella cocta necnon calidaque la-
ventur,

If head-ach come by drinking too
much wine,

Or any other drink that may reſign,
The bodies danger to an ague fit,

Ingroſſing fumes that much perplex
the wit,

To drink cold water let him not re-
frain,

Becauſe it hinders all that hurts the
brain.

Crown of the head, or fore-head being
vect.

And with extremity of heat perplex :

THE ORIGINAL LATIN.

Et si enim credunt capitis prodesse
dolori.

DR. HOLLAND'S TRANSLATION

Chafe then the temples with mild
moderation,
And wash them with warm water in
good fashion.
But seething motherwort therein is
best,
Because it gently cools, and causes
rest.

Temporis æstivi jejunia corpora sic-
cant.

Quolibet in mense & confert vomit-
tus, quoque purgat

Humores nocuos, stomachus quos con-
tinet intus.

Ver, autumnus, hyems, æstas domi-
nantur in anno.

Tempore vernali calidusque aer, ma-
didusque,

Et nullum tempus melius est phle-
botomiz.

Ufus tunc homini veneris confert
moderatus,

Corporis & motus, ventrisque solutio,
sudor,

Balnea, purgentur tunc corpora per
medicina.

Æstas more calet sicca, & noscatur
in illa

Tunc quoque præcipue choleram ru-
bram dominari,

Humida, frigida fercula dentur, sit
Venus extra,

In summer season, fasting is not good,
Because it dries the body and the
bloud.

To vomit once a month wholsom
some hold,

For hurtfull humors thereby are con-
troll'd,

And voided quite away. The sto-
mack clear,

Beware what next annoyance cometh
there.

Spring, autumn, winter, summer rule
the year,

And all their severall hours in them
appear.

The vernal season is both moist and
hot,

And for bloud-letting no time bet-
ter got.

Let men with Venus meddle mo-
derately,

For then they best may spare such
company.

Then temperate motion, last, nor
sweat offends,

To purge by bathing, phisick then
commends.

Summer is hot and dry, red choler
then

Increaseth, and dries all thats moist
in men.

THE ORIGINAL LATIN.

Balnea non profunt, sint raræ phle-
botomiz,
Utilis est requies, sit cùm moderatius
ne potus.

DR. HOLLAND'S TRANSLATION.

Micates moist and cool, do best be-
come that season,
And wantoning with women shews
small reason.
Bath not at all, and seldom open a
vein,
Use little motion, labouring much re-
frain,
And drink but little, lest it prove to
pain.

NUMBER II.

CORNARO,

AND THE AUTHORS WHO IMMEDIATELY PRECEDED HIM.

Preliminary Observations.

IN the dark period which intervened, from the time when the *Regimen Sanitatis Salerni* was written, till the Era when Cornaro lived, there are hardly any works, excepting those attributed to Friar Bacon, at all connected with the present inquiry, which merit any particular attention.

Among the foreign authors who wrote during that period on health and longevity, there are three, however, who may be mentioned, more with a view of tracing the progress that had been made in those inquiries, than from any advantage to be derived from the doctrines which they have inculcated.

1. Marcilius Ficinus, who translated the works of Plato, was the first physician, after the revival of learning in the western parts of Europe, who wrote concerning health. He was born in Florence, and educated in the family of the great Cosmo de Medicis, who appointed him preceptor to his sons, and bestowed a handsome estate upon him. Among his other voluminous works, he published a treatise concerning health and long life. In his dedication to Laurentius, grandson of Cosmus, he calls Galen the physician of the body, and Plato the physician of the soul. In his book he accordingly mixes a great deal of the subtilties of
Plato

Plato and Plotinus, with some useful rules, copied mostly from Galen. To these, however, he adds several ridiculous and superstitious precepts of his own, that still shew the darkness of the age in which he lived.*

2. Antonius Gazius of Padua, wrote a book *concerning health and long life*, which was published anno 1491, by the title of *Corona Florida*; but this work is little known, and is not to be met with in any of our public libraries.†

3d. Platina Cremonensis addressed a short treatise on health to Cardinal Roverella, anno 1529. He was no physician, but copied principally from Celsus all that he recommends. It is proper to mention him, he being probably the first who advises delicate people to chew their food well, if they expect that the stomach should digest it; for how is it possible, says he, “that those who swallow their meat whole, should escape crudities and cructations.”‡

Several other authors are contained in the catalogues of Haller and of Ploucquet, who are not taken notice of in M’Kenzie’s History of health, and whose works are not known to the learned in this island: but the treatises written by Cornaro, have obtained a celebrity beyond all

* For instance, 1, he admonishes people to consult a good astrologer at every septennial period of their lives, and when they shall learn from him the dangers which hang over their heads, they may then go to the physician to prevent those dangers; and 2, He recommends the internal use of gold frankincense, and myrrh, to old people, in imitation of the wise men, who offered these three to the creator of the stars, in order to obtain from him the benign influence of the three lords of the planets; viz. Sol, Jupiter, and Saturn. See M’Kenzie’s History of health, p. 229.

† M’Kenzie’s History of health, p. 234.

‡ M’Kenzie’s History of health, p. 234.

most any publication of the sort; the good intentions of the author, the simplicity and unaffected manner in which the work is drawn up, the garrulity with which it is written, so natural to an old man, the good sense of many of the doctrines which it inculcates, and the author having not only carried his own precepts into practice, but so successfully, as thereby to have preserved his health till he had reached about 100 years of age,—all these circumstances combined, have tended to render his little volume a general favourite.

But though sobriety and temperance are certainly to be recommended, yet to carry it to such an extreme, as to weigh one's food, or to measure one's drink, may be practised by a few individuals, for the sake of experiment, but would never do for mankind at large. Twelve ounces of solid food, and fourteen ounces of liquids, may carry on a vegetative kind of life for many years; but few would wish to continue so lifeless and uncomfortable a state of existence. Cornaro tells us, that, in order to preserve his health, he not only resolved to restrict himself to the quantities above mentioned, but was also obliged to be careful to avoid heat, cold, fatigue, grief, watchings, and every other excess that could hurt his health.* How could the business of the world be carried on, if every man, like Cornaro, were to begin to follow such a system at the fortieth year of his age?

Though Cornaro, however, has carried his precepts and his practice to an extreme that cannot be generally adopted, yet he has certainly great merit; 1, For the good sense of many of his doctrines; 2, For his perseverance in practising them; and 3, For publishing to the world the result of his experiments. We shall now proceed, therefore, to lay before the reader the treatises in question, accord-

* See p. 59.

ing to the best translation of them that has hitherto been printed in the English language.*

It

* The best translation is certainly the one printed at London, for Benjamin Whyte, Fleet street, anno 1779. The following preface is prefixed to it.

Lewis Cornaro was descended from one of the most illustrious families in Venice, but, by the ill conduct of some of his relations, had the misfortune to be deprived of the dignity of a nobleman, and excluded from all honours and public employments in the state. Chagrined at this unmerited disgrace, he retired to Padua, and married a lady of the family of Spiltemberg, whose name was Veronica. Being in possession of a good estate, he was very desirous of having children; and after a long expectation of this happiness, his wife was delivered of a daughter, to whom he gave the name of Clara. This was his only child, who afterwards was married to John, the son of Fantini Cornaro, of a rich family in Cyprus, while that island belonged to the republic of Venice. Though he was far advanced in life when his daughter Clara came into the world, yet he lived to see her very old, and the mother of eight sons and three daughters. He was a man of sound understanding, determined courage and resolution. In his younger days he had contracted infirmities by intemperance, and by indulging his too great propensity to anger; but when he perceived the ill consequence of his irregularities, he had command enough of himself to subdue his passion and inordinate appetites. By means of great sobriety, and a strict regimen in his diet, he recovered his health and vigour, which he preserved to an extreme old age. At a very advanced stage of life he wrote the following discourses, wherein he acquaints us with the irregularity of his youth, his reformation of manners, and the hopes he entertained of living a long time. Nor was he mistaken in his expectation, for he resigned his last breath without any agony, sitting in an elbow chair, being above 100 years old. This happened at Padua, the 26th of April 1566. His lady, almost as old as himself, survived him but a short time, and died an easy death. They were both interred in St. Antony's church, without any pomp, pursuant to their testamentary directions.

These discourses, though written in Cornaro's old age, were penned at different times, and published separately: the first, which he wrote at the age of eighty-three, is entitled, A Treatise on a sober life, in which he declares war against every kind of intemperance; and his vigorous old

A TREATISE ON A SOBER LIFE;

By Lewis Cornaro, a noble Venetian.

IT is a thing past all doubt, that custom, by time, becomes a second nature, forcing men to use that, whether good or bad, to which they have been habituated: nay, we see habit, in many things, get the better of reason. This is so undeniably true, that virtuous men, by conversing with

age speaks in favour of his precepts. The second treatise he composed at the age of eighty-six: it contains farther encomiums on sobriety, and points out the means of mending a bad constitution. He says that he came into the world with a choleric disposition, but that his temperate way of life had enabled him to subdue it. The third, which he wrote at the age of ninety-one, is entitled, *An Earnest exhortation to a sober life*: here he uses the strongest arguments to persuade mankind to embrace a temperate life, as the means of attaining a healthy and vigorous old age. The fourth and last, is a letter to Barbaro, patriarch of Aquileia, written at the age of ninety-five: it contains a lively description of the health, vigour, and perfect use of all his faculties, which he had the happiness of enjoying at that advanced period of life.

This useful work was translated some years ago into English, under the title of *Sure and certain methods of attaining a long and healthy life*. The translator seems rather to have made use of a French version than of the Italian original: he has likewise omitted several passages of the Italian; and the whole is rather a paraphrase than a translation. This has induced us to give the public an exact and faithful version of that excellent performance, from the Venice edition in 8vo, in the year 1620;* and as a proof of the merit and authenticity of the work, we beg leave to quote Mr. Addison's recommendation of it, *Spectator*, vol. iii, N^o. 195.

"The most remarkable instance of the efficacy of temperance, towards the procuring long life, is what we meet with in a little book published by Lewis Cornaro the Venetian; which I the rather mention, because it is of undoubted credit, as the late Venetian ambassador, who was of the same family, attested more than once in conversation,

* The first edition was published by the author at Padua, in 440 A. D. 1558.

with the wicked, very often fall into the same vicious course of life. The contrary, likewise, we see sometimes happen; viz. that, as good morals easily change to bad, so bad morals change again to good. For instance, let a wicked man who was once virtuous, keep company with a virtuous man, and he will again become virtuous; and this alteration can be attributed to nothing but the force of habit, which is, indeed, very great. Seeing many examples of this; and besides, considering that, in consequence of this great force of habit, three bad customs have got footing in Italy within a few years, even within my own memory; the first flattery and ceremoniousness; the second Lutheranism,* which some have most preposterously embraced; the third intemperance; and that these three vices, like so many cruel monsters, leagued, as indeed they are, against mankind, have gradually prevailed so far, as to
rob

“ when he resided in England. Cornaro, who was the author of the little
 “ treatise I am mentioning, was of an infirm constitution, till about forty,
 “ when, by obstinately persisting in an exact course of temperance, he re-
 “ covered a perfect state of health; inasmuch, that at fourscore he publish-
 “ ed his book, which has been translated into English under the title of,
 “ *Sure and certain methods of attaining a long and healthy life.* He lived to
 “ give a third or fourth edition of it, and after having passed his hundredth
 “ year, died without pain or agony, and like one who falls asleep. The
 “ treatise I mention has been taken notice of by several eminent authors,
 “ and is written with such a spirit of cheerfulness, religion, and good
 “ sense, as are the natural concomitants of temperance and sobriety.
 “ The mixture of the old man in it, is rather a recommendation than a
 “ discredit to it.”

* The author writes with the prejudice of a zealous Roman Catholic against the doctrine of the reformation, which he here distinguishes by the name of Lutheranism. This was owing to the artifices of the Romish clergy in those days, by whom the reformed religion was misrepresented, as introductive of licentiousness and debauchery.

rob civil life of its sincerity, the soul of its piety, and the body of its health; I have resolved to treat of the last of these vices, and prove that it is an abuse, in order to extirpate it, if possible. As to the second, Lutheranism, and the first, flattery, I am certain, that some great genius or another will soon undertake the task of exposing their deformity, and effectually suppressing them. Therefore, I firmly hope that, before I die, I shall see these three abuses conquered and driven out of Italy; and this country of course restored to its former laudable and virtuous customs.

To come then to that abuse, of which I have proposed to speak, namely, intemperance; I say, that it is a great pity it should have prevailed so much, as entirely to banish sobriety. Though all are agreed, that intemperance is the offspring of gluttony, and sober living of abstemiousness; the former, nevertheless, is considered as a virtue and a mark of distinction, and the latter, as dishonourable and the badge of avarice. Such mistaken notions are entirely owing to the power of custom, established by our senses and irregular appetites; these have blinded and besotted men to such a degree, that, leaving the paths of virtue, they have followed those of vice, which lead them before their time to an old age, burthened with strange and mortal infirmities, so as to render them quite decrepid before forty, contrary to the effects of sobriety, which, before it was banished by this destructive intemperance, used to keep men sound and hearty to the age of eighty and upwards. O wretched and unhappy Italy! do not you see, that intemperance murders every year more of your subjects, than you could lose by the most cruel plague, or by fire and sword in many battles? Those truly shameful casts, now so much in fashion, and so intolerably profuse,

that no tables are large enough to hold the dishes, which renders it necessary to heap them one upon another; those feasts, I say, are so many battles; and how is it possible to support nature by such a variety of contrary and unwholesome foods? Put a stop to this abuse, for God's sake, for there is not, I am certain of it, a vice more abominable than this in the eyes of the divine majesty. Drive away this new kind of death, as you have banished the plague, which, though it formerly used to make such havoc, now does little or no mischief, owing to the laudable practice of attending more to the goodness of the provisions brought to our markets. There are means still left to banish intemperance, and such means too, that every man may have recourse to them without any assistance. Nothing more is requisite for this purpose, than to live up to the simplicity dictated by nature, which teaches us to be content with little, to pursue the medium of holy abstemiousness and divine reason, and to accustom ourselves to eat no more than is absolutely necessary to support life; considering that what exceeds this, is disease and death, and merely gives the palate a satisfaction, which, though but momentary, brings on the body a long and lasting train of disagreeable sensations and diseases, and at length destroys it along with the soul. How many friends of mine, men of the finest understanding, and most amiable disposition, have I seen carried off by this plague in the flower of their youth? who, were they now living, would be an ornament to the public, and whose company I should enjoy with as much pleasure as I now feel concern at their loss.

In order, therefore, to put a stop to so great an evil, I have resolved, by this short discourse; to demonstrate, that intemperance is an abuse which may be easily removed, and that the good old sober living may be substituted in its
stead;

stead; and this I undertake the more readily, as many young men of the best understanding, knowing that it is a vice, have requested it of me, moved thereto by seeing their fathers drop off in the flower of their youth, and me so sound and hearty at the age of eighty-one. They expressed a desire to reach the same term, nature not forbidding us to wish for longevity; and old age being, in fact, that time of life in which prudence can be best exercised, and the fruits of all the other virtues enjoyed with less opposition, the passions being then so subdued, that man gives himself up entirely to reason. They beseeched me to let them know the method pursued by me to attain it; and then finding them intent on so laudable a pursuit, I have resolved to treat of that method, in order to be of service not only to them, but to all those who may be willing to peruse this discourse. I shall, therefore, give my reasons for renouncing intemperance, and betaking myself to a sober course of life; declare freely the method pursued by me for that purpose, and then set forth the effects of so good a habit upon me; whence it may be clearly gathered, how easy it is to remove the abuse of intemperance. I shall conclude, by shewing how many conveniencies and blessings are the consequences of a sober life.

I say then, that the heavy train of infirmities, which had not only invaded, but even made great inroads in my constitution, were my motives for renouncing intemperance, to which I had been greatly addicted; so that, in consequence of it, and the badness of my constitution, my stomach being exceedingly cold and moist, I was fallen into different kinds of disorders, such as pains in my stomach, and often stitches, and species of the gout; attended by what was still worse, an almost continual flow fever, a stomach generally out of order, and a perpetual thirst.

From these natural and acquired disorders the best delivery I had to hope for, was death, to put an end to the pains and miseries of life; a period very remote in the regular course of nature, though I had hastened it by my irregular manner of living. Finding myself, therefore, in such unhappy circumstances between my thirty-fifth and fortieth year, every thing that could be thought of having been tried to no purpose to relieve me, the physicians gave me to understand, that there was but one method left to get the better of my complaints, provided I would resolve to use it, and patiently persevere in it. This was a sober and regular life, which they assured me would be still of the greatest service to me, and would be as powerful in its effects, as the intemperate and irregular one had been, in reducing me to the present low condition: and that I might be fully satisfied of its salutary effects, for though by my irregularities I was become infirm, I was not reduced so low, but that a temperate life, the opposite in every respect to an intemperate one, might still entirely recover me. And, besides, it in fact appears, such a regular life, whilst observed, preserves men of a bad constitution, and far gone in years, just as a contrary course has the power to destroy those of the best constitution, and in their prime; for this plain reason, that different modes of life are attended by different effects; art following, even herein, the steps of nature, with equal power to correct natural vices and imperfections. This is obvious in husbandry and the like. They added, that if I did not immediately have recourse to such a regimen, I could receive no benefit from it in a few months, and that in a few more I must resign myself to death.

These solid and convincing arguments made such an impression on me, that, mortified as I was besides, by the thoughts

thoughts of dying in the prime of life, and at the same time perpetually tormented by various diseases, I immediately concluded, that the foregoing contrary effects could not be produced but by contrary modes of living; and, therefore, full of hopes, resolved, in order to avoid at once both death and disease, to betake myself to a regular course of life. Having, upon this, inquired of them what rules I should follow, they told me, that I must not use any food, solid or liquid, but such as, being generally prescribed to sick persons, is, for that reason, called diet, and both very sparingly. These directions, to say the truth, they had before given me; but it was at a time of life when, impatient of such restraint, and finding myself satiated, as it were, with such food, I could not put up with it, and therefore eat freely of every thing I liked best; and likewise, feeling myself in a manner parched up by the heat of my disease, made no scruple of drinking, and in large quantities, the wines that best pleased my palate. This, indeed, like all other patients, I kept a secret from my physicians. But, when I had once resolved to live sparingly, and according to the dictates of reason, seeing that it was no difficult matter, nay, that it was my duty as a man so to do, I entered with so much resolution upon this new course of life, that nothing has been since able to divert me from it. The consequence was, that in a few days I began to perceive, that such a course agreed with me very well; and by pursuing it, in less than a year, I found myself (some persons, perhaps, will not believe it) entirely freed from all my complaints.

Having thus recovered my health, I began seriously to consider the power of temperance, and say to myself, that if this virtue had efficacy enough to subdue such grievous disorders as mine, it must have still greater to preserve me
in

in health, to help my bad constitution, and comfort my very weak stomach. I therefore applied myself diligently to discover what kinds of food suited me best. But, first, I resolved to try, whether those, which pleased my palate, agreed or disagreed with my stomach, in order to judge for myself of the truth of that proverb, which I once held for true, and is universally held as such in the highest degree, inasmuch that epicures, who give a loose to their appetites, lay it down as a fundamental maxim. This proverb is, that whatever pleases the palate, must agree with the stomach and nourish the body; or whatever is palatable must be equally wholesome and nourishing. The issue was, that I found it to be false: for, though rough and very cold wines, as likewise melons and other fruits, salad, fish, and pork, tarts, garden-stuff, pastry, and the like, were very pleasing to my palate, they disagreed with me notwithstanding. Having thus convinced myself that the proverb in question was false, I looked upon it as such; and, taught by experience, I gave over the use of such meats and wines, and likewise of ice; chose wine suited to my stomach, drinking of it but the quantity I knew I could digest. I did the same by my meat, as well in regard to quantity as to quality, accustoming myself never to cloy my stomach with eating or drinking; but constantly rise from table with a disposition to eat and drink still more. In this I conformed to the proverb, which says, that a man, to consult his health, must check his appetite. Having in this manner, and for these reasons, conquered intemperance and irregularity, I betook myself entirely to a temperate and regular life: which effected in me the alteration already mentioned, that is, in less than a year it rid me of all those disorders, which had taken so deep a root in me; nay, as I have already observed, had made such a progress,

progress as to be in a manner incurable. It had likewise this other good effect, that I no longer experienced those annual fits of sickness with which I used to be afflicted while I followed a different, that is, a sensual, course of life; for then I used to be attacked every year with a strange kind of fever, which sometimes brought me to death's door. From this disease, then, I also freed myself, and became exceeding healthy, as I have continued from that time forward to this very day; and for no other reason than that I never trespassed against regularity, which, by its infinite efficacy, has been the cause that the meat I constantly eat, and the wine I constantly drank, being such as agree with my constitution, and, taken in proper quantities, imparted all their virtue to my body, and then left it without difficulty, and without engendering in it any bad humours.

In consequence, therefore, of my-taking such methods, I have always enjoyed, and (God be praised) actually enjoy, the best of healths. It is true, indeed, that, besides the two foregoing most important rules relative to eating and drinking, which I have ever been very scrupulous to observe, that is, not to take of any thing but as much as my stomach can easily digest, and to use those things only which agree with me; I have carefully avoided heat, cold, and extraordinary fatigue, interruption of my usual hours of rest, excessive venery, making any stay in bad air, and exposing myself to the wind and sun; for these, too, occasion great disorders. But then, fortunately, there is no great difficulty in avoiding them, the love of life and health having more sway over men of understanding, than any satisfaction they could find in doing what must be extremely hurtful to their constitution. I have likewise done all that lay in my power to avoid those evils which we do not find so easy to remove. These are melancholy, hatred, and other violent passions,
which

which appear to have the greatest influence over our bodies. However, I have not been able to guard so well against either one or the other kind of those disorders, as not to suffer myself now and then to be hurried away by many, not to say all, of them; but I have reaped the benefit of knowing by experience that these passions have, in the main, no great influence over bodies governed by the two foregoing rules of eating and drinking, and therefore can do them but very little harm; so that it may, with great truth, be affirmed, that whoever observes these two capital rules is liable to very little inconveniency from any other excesses. This Galen, who was an eminent physician, observed before me. He affirms, that, so long as he followed these rules relative to eating and drinking, he suffered but little from other disorders, so little, that they never gave him above a day's uneasiness. That what he says is true I am a living witness, and so are many others who know me, and have seen how often I have been exposed to heats and colds, and such other disagreeable changes of weather; and have likewise seen me (owing to various misfortunes which have more than once befallen me) greatly disturbed in mind. For they cannot only say of me, that such disturbance of mind has done me very little harm, but they can aver of many others, who did not lead a sober and regular life, that it proved very prejudicial to them, amongst whom was a brother of my own, and others of my family, who, trusting to the goodness of their constitution, did not follow my way of living. The consequence hereof was a great misfortune to them, the perturbations of the mind having thereby acquired an extraordinary influence over their bodies. Such, in a word, was their grief and dejection at seeing me involved in expensive law-suits, commenced against me by great and

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powerful

powerful men, that, fearing I should be cast, they were seized with that melancholy humour with which intemperate bodies always abound; and these humours had such an influence over them, and increased to such a degree, as to carry them off before their time; whereas I suffered nothing on the occasion, as I had in me no superfluous humours of that kind. Nay, in order to keep up my spirits, I brought myself to think that God had raised up these suits against me, in order to make me more sensible of my strength of body and mind, and that I should get the better of them with honour and advantage, as it in fact came to pass: for, at last, I obtained a decree exceeding favourable to my fortune and my character, which, though it gave me the highest pleasure, had not the power to do me any harm in other respects. Thus it is plain, that neither melancholy, nor any other affection of the mind, can hurt bodies governed with temperance and regularity.

But I must go a step farther, and say, that even misfortunes themselves can do but very little mischief, or cause but very little pain, to such bodies; and that this is true I have myself experienced at the age of seventy. I happened, as is often the case, to be in a coach, which, going at a pretty smart rate, was upset, and, in that condition, drawn a considerable way by the horses before means could be found to stop them; whence I received so many shocks and bruises, that I was taken out with my head and all the rest of my body terribly battered, and a dislocated leg and arm. When I was brought home, the family immediately sent for the physicians, who, on their arrival, seeing me in so bad a plight, concluded that within three days I should die; nevertheless, they would try what good two things would do me; one was to bleed me, the other to purge me; and thereby prevent my humours altering, as they

they every moment expected, to such a degree as to ferment greatly, and bring on a high fever. But I, on the contrary, who knew that the sober life I had led for many years past had so well united, harmonized, and disposed, my humours, as not to leave it in their power to ferment to such a degree, refused to be either bled or purged. I just caused my leg and arm to be set, and suffered myself to be rubbed with some oils, which they said were proper on the occasion. Thus, without using any other kind of remedy, I recovered, as I thought I should, without feeling the least alteration in myself, or any other bad effects from this accident; a thing which appeared miraculous even in the eyes of the physicians. Hence we are to infer, that whoever leads a sober and regular life, and commits no excess in his diet, can suffer but very little from disorders of any other kind, or external accidents. On the contrary, I conclude, especially from the late trial I have had, that excesses in eating and drinking are fatal. Of this I convinced myself four years ago, when, by the advice of my physicians, the instigation of my friends, and the importunity of my own family, I consented to such an excess, which, as it will appear hereafter, was attended with far worse consequences than could naturally be expected. This excess consisted in increasing the quantity of food I generally made use of; which increase alone brought on me a most cruel fit of sickness. And, as it is a case so much in point to the subject in hand, and the knowledge of it may be useful to some of my readers, I shall take the trouble to relate it.

I say then, that my dearest friends and relations, actuated by the warm and laudable affection and regard they have for me, seeing how little I eat, represented to me, in conjunction with my physicians, that the sustenance I took could not be sufficient to support one so far advanced in
years,

years, when it was become necessary not only to preserve nature, but to increase its vigour. That, as this could not be done without food, it was absolutely incumbent upon me to eat a little more plentifully. I, on the other hand, produced my reasons for not complying with their desires. These were, that nature is content with little, and that with this little I had preserved myself so many years; and that, to me, the habit of it was become a second nature; and that it was more agreeable to reason, that, as I advanced in years, and lost my strength, I should rather lessen than increase the quantity of my food: farther, that it was but natural to think that the powers of the stomach grew weaker from day to day; on which account I could see no reason to make such an addition. To corroborate my arguments, I alleged those two natural and very true proverbs; one, that he who has a mind to eat a great deal must eat but little; which is said for no other reason than this, that eating little makes a man live very long; and living very long he must eat a great deal. The other proverb was, that what we leave after making a hearty meal does us more good than what we have eat. But neither these proverbs, nor any other arguments I could think of, were able to prevent their teasing me more than ever. Wherefore, not to appear obstinate, or affect to know more than the physicians themselves; but, above all, to please my family, who very earnestly desired it, from a persuasion that such an addition to my usual allowance would preserve my strength, I consented to increase the quantity of food, but with two ounces only. So that, as before, what with bread, meat, the yolk of an egg, and soup, I eat as much as weighed in all twelve ounces, neither more nor less; I now increased it to fourteen; and, as before I drank but fourteen ounces of wine, I now increased it to sixteen.

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This increase and irregularity had, in eight days time, such an effect upon me, that, from being cheerful and brisk, I began to be peevish and melancholy, so that nothing could please me, and was constantly so strangely disposed, that I neither knew what to say to others, nor what to do with myself. On the twelfth day I was attacked with a most violent pain in my side, which held me twenty-two hours, and was succeeded by a terrible fever, which continued thirty-five days and as many nights, without giving me a moment's respite, though, to say the truth, it began to abate gradually on the fifteenth: but, notwithstanding such abatement, I could not, during the whole time, sleep half a quarter of an hour together, insomuch that every one looked upon me as a dead man. But, God be praised, I recovered, merely by my former regular course of life, though then in my seventy-eighth year, and in the coldest season of a very cold year, and reduced to a mere skeleton; and I am positive that it was the great regularity I had observed for so many years; and that only, which rescued me from the jaws of death. In all that time I never knew what sickness was, unless I may call by that name some slight indispositions of a day or two's continuance; the regular life I had led, as I have already taken notice, for so many years, not having permitted any superfluous or bad humours to breed in me; or if they did, to acquire such strength and malignity, as they generally acquire in the superannuated bodies of those who live without rule. And as there was not any old malignity in my humours, (which is the thing that kills people), but only that which my new irregularity had occasioned, this fit of sickness, though exceeding violent, had not strength enough to destroy me. This it was, and nothing else, that saved my life; whence may be gathered, how great is the power and efficacy of regularity; and
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how great, likewise, is that of irregularity, which in a few days could bring on me so terrible a fit of sickness, just as regularity had preserved me in health for so many years.

And it appears to me a no weak argument, that, since the world, consisting of the four elements, is upheld by order, and our life, as to the body, is no other than a harmonious combination of the same four elements, so it should be preserved and maintained by the very same order; and, on the other hand, it must be worn out by sickness, or destroyed by death, which are produced by the contrary effects. By order the arts are more easily learned; by order armies are rendered victorious; by order, in a word, families, cities, and even states, are maintained. Hence I concluded, that orderly living is no other than a most certain cause and foundation of health and long life; nay, I cannot help saying, that it is the only and true medicine; and whoever weighs the matter well, must also conclude that this is really the case. Hence it is, that when a physician comes to visit a patient, the first thing he prescribes is to live regularly. In like manner, when a physician takes leave of a patient on his being recovered, he advises him, as he tends his health, to lead a regular life. And it is not to be doubted, that, were a patient so recovered to live in that manner, he could never be sick again, as it removes every cause of illness; and so, for the future, would never want either physician or physic. Nay, by attending duly to what I have said, he would become his own physician, and, indeed, the best he could have; since, in fact, no man can be a perfect physician to any one but himself. The reason of which is, that any man may, by repeated trials, acquire a perfect knowledge of his own constitution, and the most hidden qualities of his body, and what wine and food agree

with his stomach. Now, it is so far from being an easy matter to know these things perfectly of another, that we cannot, without much trouble, discover them in ourselves, since a great deal of time and repeated trials are requisite for that purpose.

These trials are, indeed (if I may say it), more than necessary, as there is a greater variety in the natures and constitutions of different men than in their persons. Who could believe that old wine, wine that had passed its first year, should disagree with my stomach, and new wine agree with it? and that pepper, which is looked upon as a warm spice, should not have a warm effect upon me, inasmuch that I find myself more warmed and comforted by cinnamon? Where is the physician that could have informed me of these two latent qualities, since I myself, even by a long course of observation, could scarce discover them? From all these reasons it follows, that it is impossible to be a perfect physician to another. Since, therefore, a man cannot have a better physician than himself, nor any physic better than a regular life, a regular life he ought to embrace.

I do not, however, mean that, for the knowledge and cure of such disorders as often befall those who do not live regularly, there is no occasion for a physician, and that his assistance ought to be slighted. For, if we are apt to receive such great comfort from friends who come to visit us in our illness, though they do no more than testify their concern for us, and bid us be of good cheer, how much more regard ought we to have for the physician, who is a friend that comes to see us in order to relieve us, and promises us a cure? But, for the bare purpose of keeping ourselves in good health, I am of opinion, that we should consider as a physician this regular life, which, as we have seen, is our natural and proper physic, since it preserves men,
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even those of a bad constitution, in health ; makes them live sound and hearty to the age of one hundred and upwards ; and prevents their dying of sickness, or through a corruption of their humours, but merely by a dissolution of their radical moisture, when quite exhausted ; all which effects several wise men have attributed to potable gold, and the elixir, sought for by many, but discovered by few. However, to confess the truth, men, for the most part, are very sensual and intemperate, and love to satisfy their appetites, and to commit every excess ; therefore, seeing that they cannot avoid being greatly injured by such excess, as often as they are guilty of it, they, by way of apologizing for their conduct, say, that it is better to live ten years less, and enjoy themselves ; not considering of what importance are ten years more of life, especially a healthy life, and at a maturer age, when men become sensible of their progress in knowledge and virtue, which cannot attain to any degree of perfection before this period of life.

Not to speak, at present, of many other advantages, I shall barely mention that, in regard to letters and the sciences, far the greatest number of the best and most celebrated books extant were written during that period of life, and those ten years, which some make it their business to undervalue, in order to give a loose to their appetites. Be that as it will, I would not act like them ; I rather coveted to live these ten years, and, had I not done so, I should never have finished those tracts, which I have composed in consequence of my having been sound and hearty these ten years past, and which I have the pleasure to think will be of service to others. These sensualists add, that a regular life is such as no man can lead. To this I answer, Galen, who was so great a physician, led such a life, and chose it as the best physic ; the same did Plato,

Cicero, Isocrates, and many other great men of former times, whom, not to tire the reader, I shall forbear naming : and, in our own days, Pope Paul Farnese led it, and Cardinal Bembo ; and it was for that reason they lived so long : likewise our two doges, Lando and Donato ; besides many others of meaner condition, and those who live not only in cities, but also in different parts of the country, who all found great benefit by conforming to this regularity. Therefore, since many have led this life, and many actually lead it, it is not such a life but that every one may conform to it, and the more so, as no great difficulty attends it ; nothing, indeed, being requisite but to begin in good earnest, as the above-mentioned Cicero affirms, and all those who now live in this manner. Plato, you will say, though he himself lived very regularly, affirms, notwithstanding, that in republics men cannot do so, being often obliged to expose themselves to heat, cold, and several other kinds of hardship, and other things, which are all so many disorders, and incompatible with a regular life. I answer, as I have already observed, that these are not disorders attended with any bad consequence, or which affect either health or life, when the man who undergoes them observes the rules of sobriety, and commits no excess in the two points concerning diet, which a republican may very well avoid ; nay, it is requisite he should avoid ; because by so doing, he may be sure either to escape those disorders, which otherwise it would be no easy matter for him to escape while exposed to these hardships, or, in case he should not escape them, he may more easily and speedily prevent their bad effects.

Here it may be objected, and some actually object, that he who leads a regular life, having constantly, when well, made use of food fit for the sick, and in small quantities, has no resource left in case of illness. To this I might, in the

the first place, answer, that nature, desirous to preserve man in good health as long as possible, informs him, herself, how he is to act in time of illness; for she immediately deprives him, when sick, of his appetite, in order that he may eat but little; because nature (as I have said already) is satisfied with little; wherefore, it is requisite that a man, when sick, whether he has been a regular or irregular liver, should use no meats, but such as are suited to his disorder; and of these even in a much smaller quantity than he was wont to do when in health. For were he to eat as much as he used to do, he would die by it; because it would be only adding to the burden with which nature was already oppressed, by giving her a greater quantity of food than she can in such circumstances support; and this, I imagine, would be a sufficient caution to any sick person. But, independent of all this, I might answer some others, and still better, that whoever leads a regular life cannot be sick, or at least but seldom, and for a short time; because, by living regularly, he extirpates every seed of sickness; and thus, by removing the cause, prevents the effect; so that he, who pursues a regular course of life, need not be apprehensive of illness, as he need not be afraid of the effect who has guarded against the cause.

Since it therefore appears that a regular life is so profitable and virtuous, so lovely and so holy, it ought to be universally followed and embraced; and the more so, as it does not clash with the means or duties of any station, but is easy to all; because, to lead it, a man need not tie himself down to eat so little as I do, or not to eat fruit, fish, and other things of that kind, from which I abstain, who eat little, because it is sufficient for my puny and weak stomach; and fruit, fish, and other things of that

kind, disagree with me, which is my reason for not touching them. Those, however, with whom such things agree, may, and ought to eat of them ; since they are not by any means forbid the use of such sustenance. But then, both they, and all others, are forbid to eat a greater quantity of any kind of food, even of that which agrees with them, than what their stomachs can easily digest : the same is to be understood of drink. Hence it is that those, with whom nothing disagrees, are not bound to observe any rule but that relating to the quantity, and not to the quality, of their food ; a rule which they may, without the least difficulty in the world, comply with.

Let nobody tell me, that there are numbers, who, though they live most irregularly; live in health and spirits, to those remote periods of life attained by the most sober ; for, this argument being grounded on a case full of uncertainty and hazard, and which, besides, so seldom occurs as to look more like a miracle than the work of nature, men should not suffer themselves to be thereby persuaded to live irregularly, nature having been too liberal to those who did so without suffering by it ; a favour which very few have any right to expect. Whoever, trusting to his youth, or the strength of his constitution, or the goodness of his stomach, slight these observations, must expect to suffer greatly by so doing, and live in constant danger of disease and death. I therefore affirm, that an old man, even of a bad constitution, who leads a regular and sober life, is surer of a long one, than a young man of the best constitution, who leads a disorderly life. It is not to be doubted, however, that a man blessed with a good constitution may, by living temperately, expect to live longer than one whose constitution is not so good ; and that God and nature can dispose matters so, that a man shall bring into the world
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with him so found a constitution as to live long and healthy, without observing ~~for~~ strict rules; and then die in a very advanced age, through a mere dissolution of his elementary parts; as was the case in Venice, of the procurator Thomas Contarini; and in Padua, of the cavalier Antonio Capo di Vacca. But it is not one man in a hundred thousand that so much can be said of. If others have a mind to live long and healthy, and die without sickness of body or mind, but by mere dissolution, they must submit to live regularly, since they cannot otherwise expect to enjoy the fruits of such a life, which are almost infinite in number, and each of them, in particular, of infinite value. For, as such regularity keeps the humours of the body cleansed and purified, it suffers no vapours to ascend from the stomach to the head; hence the brain of him, who lives in that manner, enjoys such a constant serenity that he is always perfectly master of himself. He, therefore, easily soars above the low and groveling concerns of this life, to the exalted and beautiful contemplation of heavenly things, to his exceeding great comfort and satisfaction; because he, by this means, comes to consider, know, and understand, that which otherwise he would never have considered, known, or understood; that is, how great is the power, wisdom, and goodness, of the Deity. He then descends to nature, and acknowledges her for the daughter of God, and sees, and even feels with his hands, that, which in any other age, or with a perception less clear, he could never have seen or felt. He then truly discerns the brutality of that vice into which they fall who know not how to subdue their passions, and those three importunate lusts, which, one would imagine, came altogether into the world with us, in order to keep us in perpetual anxiety and disturbance. These are, the lust of the flesh, the lust of hon-

nours, and the lust of riches ; which are apt to increase with years in such old persons as do not lead a regular life ; because, in their passage through the stage of manhood, they did not, as they ought, renounce sensuality and their passions, and take up with sobriety and reason ; virtues which men of a regular life did not neglect when they passed through the above-mentioned stage. For, knowing such passions and such lusts to be inconsistent with reason, by which they are entirely governed, they at once broke loose from all temptations to vice ; and, instead of being slaves to their inordinate appetites, they applied themselves to virtue and good works ; and, by these means, they altered their conduct, and became men of good and sober lives. When, therefore, in process of time, they see themselves brought by a long series of years to their dissolution, conscious that, through the singular mercy of God, they had so sincerely relinquished the paths of vice as never afterwards to enter them, and moreover hoping, through the merits of our Saviour Jesus Christ, to die in his favour, they do not suffer themselves to be cast down at the thoughts of death, knowing that they must die. This is particularly the case, when, loaded with honour, and fated with life, they see themselves arrived at that age which not one in many thousands of those who live otherwise ever attains. They have still the greater reason not to be dejected at the thoughts of death, as it does not attack them violently and by surprise, with a bitter and painful turn of their humours, with feverish sensations, and sharp pains, but steals upon them insensibly, and with the greatest ease and gentleness : such an end proceeding entirely from an exhaustion of the radical moisture, which decays by degrees, like the oil of a lamp, so that they pass gently,
without

without any sickness, from this terrestrial and mortal to a celestial and eternal life.

O holy and truly happy regularity ! How holy and happy should men, in fact, deem thee, since the opposite habit is the cause of such guilt and misery, as evidently appears to those who consider the opposite effects of both ! so that men should know thee by thy voice alone, and thy lovely name ; for what a glorious name, what a noble thing, is an orderly and sober life ! as, on the contrary, the bare mention of disorder and intemperance is offensive to our ears. Nay, there is the same difference between the mentioning these two things as between the uttering of the words angel and devil.

Thus I have assigned my reasons for abandoning intemperance, and betaking myself entirely to a sober life ; with the method I pursued in doing so, and what was the consequence of it ; and, finally, the advantages and blessings which a sober life confers upon those who embrace it. Some sensual inconsiderate persons affirm, that a long life is no blessing ; and that the state of a man, who has passed his seventy-fifth year, cannot really be called life, but death ; but this is a great mistake, as I shall fully prove ; and it is my sincere wish, that all men would endeavour to attain my age, in order that they too may enjoy that period of life which of all others is the most desirable.

I will therefore give an account of my recreations, and the relish which I find at this stage of life, in order to convince the public (which may likewise be done by all those who know me) that the state I have now attained to is by no means death, but real life ; such a life as by many is deemed happy, since it abounds with all the felicity that can be enjoyed in this world. And this testimony they will give, in the first place, because they see, and not with-
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out the greatest amazement, the good state of health and spirits I enjoy; how I mount my horse without any assistance, or advantage of situation; and how I not only ascend a single flight of stairs, but climb up a hill from bottom to top, afoot, and with the greatest ease and unconcern; then how gay, pleasant, and good-humoured, I am; how free from every perturbation of mind, and every disagreeable thought; in lieu of which, joy and peace have so firmly fixed their residence in my bosom as never to depart from it. Moreover, they know in what manner I pass my time, so as not to find life a burden; seeing I can contrive to spend every hour of it with the greatest delight and pleasure, having frequent opportunities of conversing with many honourable gentlemen, men valuable for their good sense and manners, their acquaintance with letters, and every other good quality. Then, when I cannot enjoy their conversation, I betake myself to the reading of some good book. When I have read as much as I like, I write; endeavouring in this, as in every thing else, to be of service to others, to the utmost of my power. And all these things I do with the greatest ease to myself, at their proper seasons, and in my own house; which, besides being situated in the most beautiful quarter of this noble and learned city of Padua, is, in itself really convenient and handsome, such, in a word, as it is no longer the fashion to build; for, in one part of it, I can shelter myself from extreme heat, and, in the other, from extreme cold, having contrived the apartments according to the rules of architecture, which teach us what is to be observed in practice.

Besides this house, I have my several gardens supplied with running waters, and in which I always find something to do that amuses me. I have another way of diverting

verting myself, which is, going every April and May, and likewise every September and October, for some days, to enjoy an eminence belonging to me in the Euganean mountains, and in the most beautiful part of them, adorned with fountains and gardens; and, above all, a convenient and handsome lodge, in which place I likewise now and then make one in some hunting party suitable to my taste and age. Then I enjoy for as many days my villa in the plain, which is laid out in regular streets, all terminating in a large square, in the middle of which stands the church, suited to the condition of the place. This villa is divided by a wide and rapid branch of the river Brenta, on both sides of which there is a considerable extent of country, consisting entirely of fertile and well cultivated fields. Besides, this district is now, God be praised, exceedingly well inhabited, which it was not at first, but rather the reverse; for it was marshy, and the air so unwholesome as to make it a residence fitter for snakes than men. But, on my draining off the waters, the air mended, and people resorted to it so fast, and increased to such a degree, that it soon acquired the perfection in which it now appears: hence I may say with truth, that I have offered in this place an altar and a temple to God, with souls to adore him: these are things which afford me infinite pleasure, comfort, and satisfaction, as often as I go to see and enjoy them.

At the same seasons, every year, I revisit some of the neighbouring cities, and enjoy such of my friends as live there, taking the greatest pleasure in their company and conversation; and by their means I also enjoy the conversation of other men of parts, who live in the same places; such as architects, painters, sculptors, musicians, and

and husbandmen, with whom this age most certainly abounds. I visit their new works; I revisit their former ones; and I always learn something which gives me satisfaction. I see the palaces, gardens, antiquities; and with these the squares and other public places, the churches, the fortifications, leaving nothing unobserved, from whence I may reap either entertainment or instruction. But what delights me most is, in my journies backwards and forwards, to contemplate the situation and other beauties of the places I pass through; some in the plain, others on hills, adjoining to rivers or fountains; with a great many fine houses and gardens. Nor are my recreations rendered less agreeable and entertaining by my not seeing well, or not hearing readily every thing that is said to me, or by any other of my faculties not being perfect; for they are all, thank God, in the highest perfection; particularly my palate, which now relishes better the simple fare I eat, wherever I happen to be, than it formerly did the most delicate dishes, when I led an irregular life. Nor does the change of beds give me any uneasiness, so that I sleep everywhere soundly and quietly, without experiencing the least disturbance; and all my dreams are pleasant and delightful.

It is likewise with the greatest pleasure and satisfaction I behold the success of an undertaking so important to this state,—I mean that of draining and improving so many uncultivated pieces of ground, an undertaking begun within my memory, and which I never thought I should live to see completed, knowing how slow republics are apt to proceed in enterprises of great importance. Nevertheless, I have lived to see it, and was even in person in these marshy places along with those appointed to

to superintend the draining of them, for two months together, during the greatest heats of summer, without ever finding myself the worse for the fatigues or inconveniences I suffered; of so much efficacy is that orderly life which I everywhere constantly lead.

What is more, I am in the greatest hopes, or rather sure, to see the beginning and completion of another undertaking of no less importance, which is that of preserving our estuary or port, that last and wonderful bulwark of my dear country, the preservation of which (it is not to flatter my vanity I say it, but merely to do justice to truth) has been more than once recommended by me to this republic, by word of mouth, and in writings which cost me many nights study. And to this dear country of mine, as I am bound by the laws of nature to do every thing from which it may reap any benefit, so I most ardently wish perpetual duration, and a long succession of every kind of prosperity. Such are my genuine and no trifling satisfactions; such are the recreations and diversions of my old age, which is so much the more to be valued than the old age, or even youth, of other men, because being freed, by God's grace, from the perturbations of the mind, and the infirmities of the body, it no longer experiences any of those contrary emotions which torment a number of young men, and many old ones destitute of strength and health, and every other blessing.

And if it be lawful to compare little matters, and such as are esteemed trifling, to affairs of importance, I will further venture to say, that such are the effects of this sober life, that, at my present age of eighty-three, I have been able to write a very entertaining comedy, abounding with innocent mirth and pleasant jests. This species of composition is generally the child and offspring of youth, as tragedy

gedy is that of old age ; the former being, by its facetious and sprightly turn, suited to the bloom of life, and the latter, by its gravity, adapted to riper years. Now, if that good old man*, a Grecian by birth, and a poet, was so much extolled for having written a tragedy at the age of seventy-three, and, on that account alone, reputed of sound memory and understanding, though tragedy be a grave and melancholy poem, why should I be deemed less happy, and to have a smaller share of memory and understanding, who have, at an age, ten years more advanced than his, written a comedy, which, as every one knows, is a merry and pleasant kind of composition? And, indeed, if I may be allowed to be an impartial judge in my own cause, I cannot help thinking that I am now of sounder memory and understanding, and heartier, than he was when ten years younger.

And, that no comfort might be wanting to the fulness of my years, whereby my great age may be rendered less irksome, or rather the number of my enjoyments increased, I have the additional comfort of seeing a kind of immortality in a succession of descendants. For, as often as I return home, I find there, before me, not one or two, but eleven, grandchildren, the oldest of them eighteen, and the youngest two ; all the offspring of one father and one mother ; all blessed with the best health ; and, by what as yet appears, fond of learning, and of good parts and morals. Some of the youngest I always play with, and, indeed, children from three to five are only fit for play. Those above that age I make companions of ; and, as nature has bestowed very fine voices upon them, I amuse myself, besides, with seeing and hearing them sing, and play on various

* Sophocles.

various instruments. Nay, I sing myself, as I have a better voice now, and a clearer and louder pipe, than at any other period of life. Such are the recreations of my old age.

Whence it appears, that the life I lead is cheerful, and not gloomy, as some persons pretend, who know no better; to whom, in order that it may appear what value I set on every other kind of life, I must declare, that I would not exchange my manner of living or my grey hairs with any of those young men, even of the best constitution, who give way to their appetites; knowing, as I do, that such are daily, nay, hourly, subject, as I have already observed, to a thousand kinds of ailments and deaths. This is, in fact, so obvious, as to require no proof. Nay, I remember perfectly well how I used to behave at that time of life. I know how inconsiderately that age is apt to act, and how foolhardy young men, hurried on by the heat of their blood, are wont to be; how apt they are to presume too much on their own strength in all their actions; and how sanguine they are in their expectations; as well on account of the little experience they have had for the time past, as by reason of the power they enjoy in their own imaginations over the time to come. Hence they expose themselves rashly to every kind of danger; and, banishing reason, and bowing their necks to the yoke of concupiscence, endeavour to gratify all their appetites, not minding, fools as they are, that they thereby hasten, as I have several times observed, the approach of what they would most willingly avoid,—I mean sickness and death. Of these two evils one is troublesome and painful, the other, above all things, dreadful and insupportable; insupportable to every man who has given himself up to his sensual appetites, and

to young men in particular, to whom it appears a hardship to die an early death; dreadful to those who reflect on the errors to which this mortal life is subject, and on the vengeance which the justice of God is wont to take on sinners, by condemning them to everlasting punishment. On the other hand, I, in my old age, (praise to the Almighty) am exempt from both these apprehensions; from the one, because I am sure and certain that I cannot fall sick, having removed all the causes of illness by my divine medicine; from the other, that of death, because from so many years experience I have learned to obey reason; whence I not only think it a great piece of folly to fear that which cannot be avoided, but likewise firmly expect some consolation from the grace of Jesus Christ when I shall arrive at that period.

Besides, though I am sensible that I must, like others, reach that term, it is yet at so great a distance that I cannot discern it, because I know I shall not die except by mere dissolution, having already, by my regular course of life, shut up all the other avenues of death, and thereby prevented the humours of my body from making any other war upon me than that which I must expect from the elements employed in the composition of this mortal frame. I am not so simple as not to know, that, as I was born, so I must die. But that is a desirable death which nature brings on us by way of dissolution. For nature, having herself formed the union between our body and soul, knows best in what manner it may be most easily dissolved, and grants us a longer day to do it than we could expect from sickness, which is violent. This is the death, which, without speaking like a poet, I may call not death, but life. Nor can it be otherwise. Such a death does not overtake one till after a very long course
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of years, and in consequence of an extreme weakness; it being only by slow degrees that men grow too feeble to walk, and unable to reason, becoming blind, and deaf, decrepid, and full of every other kind of infirmity. Now I, by God's blessing, may be quite sure that I am at a very great distance from such a period. Nay, I have reason to think, that my soul, having so agreeable a dwelling in my body, as not to meet with any thing in it but peace, love, and harmony, not only between its humours, but between my reason and the senses, is exceedingly content and well pleased with her present situation: and of course, that a great length of time and many years must be requisite to dislodge her. Whence it must be concluded for certain, that I have still a series of years to live in health and spirits, and enjoy this beautiful world, which is indeed beautiful to those who know how to make it so, as I have done, and likewise expect to be able to do, with God's assistance, in the next; and all by the means of virtue, and that divine regularity of life, which I have adopted, concluding an alliance with my reason, and declaring war against my sensual appetites; a thing which every man may do who desires to live as he ought.

Now, if this sober life be so happy; if its name be so desirable and delightful; if the possession of the blessings which attend it be so stable and permanent, all I have still left to do is to beseech (since I cannot compass my desires by the powers of oratory) every man of a liberal disposition, and sound understanding, to embrace with open arms this most valuable treasure of a long and healthy life; a treasure, which, as it exceeds all the other riches and blessings of this world, so it deserves above all things to be cherished, sought after, and carefully preserved. This is that divine sobriety, agreeable to the deity, the

friend of nature, the daughter of reason, the sister of all the virtues, the companion of temperate living, modest, courteous, content with little, regular, and perfect mistress of all her operations. From her, as from their proper root, spring life, health, cheerfulness, industry, learning, and all those actions and employments worthy of noble and generous minds. The laws of God and man are all in her favour. Repletion, excess, intemperance, superfluous humours, diseases, fevers, pains, and the dangers of death, vanish in her presence, like clouds before the sun. Her comeliness ravishes every well-disposed mind. Her influence is so sure, as to promise to all a very long and agreeable existence: the facility of acquiring her is such as ought to induce every one to look for her, and share in her victories. And, lastly, she promises to be a mild and agreeable guardian of life; as well of the rich as of the poor; of the male, as of the female sex; the old as of the young: being that which teacheth the rich modesty; the poor frugality; men continence; women chastity; the old how to ward off the attacks of death; and bestows on youth firmer and securer hopes of life. Sobriety renders the senses clear, the body light, the understanding lively, the soul brisk, the memory tenacious, our motions free, and all our actions regular and easy. By means of sobriety, the soul, delivered, as it were, of her earthly burthen, experiences a great deal of her natural liberty: the spirits circulate gently through the arteries; the blood runs freely through the veins; the heat of the body kept mild and temperate, has mild and temperate effects: and, lastly, our faculties being under a perfect regulation, preserve a pleasing and agreeable harmony.

O most innocent and holy Sobriety, the sole refreshment
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of nature, the nursing mother of human life, the true physic of soul as well as of body ! How ought men to praise thee, and thank thee for thy princely gifts ! Since thou bestowest on them the means of preserving this blessing, I mean life and health, than which it has not pleased God we should enjoy a greater on this side of the grave, life and existence being a thing so naturally coveted, and willingly preserved, by every living creature. But, as I do not intend to write a panegyric on this rare and excellent virtue, I shall put an end to this discourse, lest I should be guilty of excess in dwelling so long on so pleasing a subject : yet as numberless things may still be said of it, I leave off with an intention of setting forth the rest of its praises at a more convenient opportunity.

A COMPENDIUM OF A SOBER LIFE.

MY Treatise on a sober life has begun to answer my desire, in being of service to many persons born with a weak constitution, who, every time they committed the least excess, found themselves greatly indisposed, a thing which, it must be allowed, does not happen to robust people. Several of these persons of weak constitutions, on seeing the foregoing treatise, have betaken themselves to a regular course of life, convinced by experience of its utility. In like manner, I should be glad to be of service to those who are born with a good constitution, and, presuming upon it, lead a disorderly life ; whence it comes to pass, that, on their attaining the age of sixty, or thereabouts, they are

attacked with various pains and diseases ; some with the gout, some with pains in the side, and others with pains in the stomach, and the like, to which they would not be subject were they to embrace a sober life ; and as most of them die before they attain their eightieth year, they would live to a hundred, the time allowed to man by God and nature. And it is but reasonable to believe, that the intention of this our mother is, that we should all attain that term, in order that we might all taste the sweets of every state of life. But, as our birth is subject to the revolutions of the heavens, these have great influence over it, especially in rendering our constitutions robust or infirm ; a thing which nature cannot ward against ; for if she could, we should all bring a good constitution with us into the world. But then she hopes, that man, being endowed with reason and understanding, may of himself compensate, by dint of art, the want of that which the heavens have denied him ; and, by means of a sober life, contrive to mend his infirm constitution, live to a great age, and always enjoy good health.

For man, it is not to be doubted, may, by art, exempt himself in part from the influence of the heavens ; it being the common opinion, that the heavens give an inclination, but do not impel us ; for which reason the learned say, that a wise man rules the stars. I was born with a very choleric disposition, insomuch that there was no living with me ; but I took notice of it, and considered, that a person swayed by his passion must, at certain times, be no better than a madman ; I mean at those times when he suffers his passions to predominate, because he then renounces his reason and understanding. I, therefore, resolved to make my choleric disposition give way to reason ; so that now, though born choleric, I never
suffer

suffer anger entirely to overcome me. The man who is naturally of a bad constitution may, in like manner, by dint of reason, and a sober life, live to a great age, and in good health, as I have done, who had naturally the worst, so that it was impossible I should live above forty years, whereas I now find myself sound and hearty at the age of eighty-six ; and were it not for the long and violent fits of illness which I experienced in my youth, to such a degree that the physicians gave me over, and which robbed me of my radical moisture, a loss absolutely irreparable, I might expect to attain the above-mentioned term of one hundred. But I know for good reasons that it is impossible ; and, therefore, do not think of it. It is enough for me that I have lived forty-six years beyond the term I had a right to expect ; and that, during this so long a respite, all my senses have continued perfect, and even my teeth, my voice, my memory, and my strength ; but what is still more, my brain is more itself now than ever it was ; nor do any of these powers abate as I advance in years ; and this because, as I grow older, I lessen the quantity of my solid food.

This retrenchment is necessary, nor can it be avoided, since it is impossible for a man to live for ever ; and as he draws near his end, he is reduced so low as to be no longer able to take any nourishment, unless it be to swallow, and that too with difficulty, the yolk of an egg in the four-and-twenty hours, and thus end by mere dissolution, without any pain or sickness, as I expect will be my case. This is a blessing of great importance ; yet may be expected by all those who shall lead a sober life, of whatever degree or condition, whether high, or middling, or low ; for we are all of the same species, and composed of the same four elements : and, since a long

and healthy life ought to be greatly coveted by every man, as I shall presently shew, I conclude, that every man is bound in duty to exert himself to obtain longevity, and that he cannot promise himself such a blessing without temperance and sobriety.

Some allege that many, without leading such a life, have lived to an hundred, and that in constant health, though they ate a great deal, and used indiscriminately every kind of viands and wine; and therefore flatter themselves that they shall be equally fortunate. But in this they are guilty of two mistakes; the first is, that it is not one in a hundred thousand that ever attains that happiness; the other mistake is, that such, in the end, most assuredly contract some illness, which carries them off: nor can they ever be sure of ending their days otherwise: so that the safest way to obtain a long and healthy life is, at least after forty, to embrace sobriety. This is no such difficult affair, since history informs us of so many, who, in former times, lived with the greatest temperance; and I know that the present age furnishes us with many such instances, reckoning myself one of the number: we are all human beings, and endowed with reason, consequently we are masters of all our actions.

This sobriety is reduced to two things, quality and quantity. The first, namely quality, consists in nothing but not eating food, or drinking wines, prejudicial to the stomach. The second, which is quantity, consists in not eating or drinking more than the stomach can easily digest; which quantity and quality every man should be a perfect judge of by the time he is forty or fifty, or sixty; and whoever observes these two rules, may be said to live a regular and sober life. This is of so much virtue and efficacy, that the humours of such a man's body be-
come

come most homogeneous, harmonious, and perfect; and, when thus improved, are no longer liable to be corrupted or disturbed by any other disorders whatsoever, such as suffering excessive heat or cold, too much fatigue, want of natural rest, and the like, unless in the last degree of excess. Wherefore, since the humours of persons who observe these two rules relative to eating and drinking cannot possibly be corrupted, and engender acute diseases, the sources of an untimely death, every man is bound to comply with them; for whoever acts otherwise, living a disorderly instead of a regular life, is constantly exposed to disease and mortality, as well in consequence of such disorders, as of others without number, each of which is capable of producing the same destructive effect.

It is, indeed, true, that even those who observe the two rules relating to diet, the observance of which constitutes a sober life, may, by committing any one of the other irregularities, find himself the worse for it a day or two, but not so as to breed a fever. He may likewise be affected by the revolution of the heavens; but neither the heavens nor those irregularities are capable of corrupting the humours of a temperate person; and it is but reasonable and natural it should be so, as the two irregularities of diet are interior, and the others exterior.

But as there are some persons stricken in years, who are, notwithstanding, very gluttonous, and allege, that neither the quantity nor quality of their diet makes any impression upon them, and there ore eat a great deal, and of every thing without distinction, and indulge themselves equally in point of drinking, because they do not know in what part of their bodies their stomachs are situated; such, no doubt, are beyond all measure sensual, and slaves to gluttony: to these I answer, that what they say

is impossible in the nature of things, because it is impossible that every man who comes into the world should not bring with him a hot, a cold, or a temperate, constitution; and that hot foods should agree with hot constitutions, cold with cold ones, and things that are not of a temperate nature with temperate ones, is likewise impossible in nature. After all, these epicures must allow, that they are now and then out of order, and that they cure themselves by taking evacuating medicines. and observing a strict diet; whence it appears, that their being out of order is owing to their eating too much, and of things disagreeing with their stomach.

There are other old gluttons, who say, that it is necessary they should eat and drink a great deal to keep up their natural heat, which is constantly diminishing as they advance in years; and that it is therefore necessary to eat heartily, and of such things as please their palate, be they hot, cold, or temperate; and that, were they to lead a sober life it would be a short one. To these I answer, that our kind mother Nature, in order that old men may live still to a greater age, has contrived matters so, that they should be able to subsist on little, as I do; for large quantities of food cannot be digested by old and feeble stomachs. Nor should such persons be afraid of shortening their days by eating too little, since, when they happen to be indisposed, they recover by lessening the quantity of their food; for it is a trifle they eat, when confined to a regimen, by observing which they get rid of their disorder. Now, if by reducing themselves to a very small quantity of food, they recover from the jaws of death, how can they doubt but that, with an increase of diet, still consistent, however, with sobriety, they will be able to support nature when in perfect health?

Others

Others say, that it is better for a man to suffer every year three or four returns of his usual disorders, such as the gout, pains in the side, and the like, than be tormented the whole year by not indulging his appetite, and eating every thing his palate likes best ; since, by a good regimen alone, he is sure to get the better of such attacks. To this I answer, that our natural heat growing less and less, as we advance in years, no regimen can retain virtue sufficient to conquer the malignity with which disorders of repletion are ever attended ; so that he must die at last of these periodical disorders, because they abridge life, as health prolongs it.

Others pretend, that it is much better to live ten years less, than not indulge one's appetite. To this I answer, that longevity ought to be highly valued by men of parts ; as to others, it is no great matter, if it is not duly prized by them, since they are a disgrace to mankind, so that their death is rather of service to the public. But it is a great misfortune that men of bright parts should be cut off in that manner, since he, who is already a cardinal, might, perhaps, by living to eighty, attain the papal crown ; and in the state, many, by living some years extraordinary, may acquire the ducal dignity ; and so in regard to letters, by which a man may rise so as to be considered as a god upon earth ; and the like in every other profession.

There are others, who, though their stomachs become weaker and weaker with respect to digestion, as they advance in years, cannot, however, be brought to retrench the quantity of their food, nay, they rather increase it. And, because they find themselves unable to digest the great quantity of food with which they must load their stomachs, by eating twice in the four-and-twenty hours, they make

a resolution to eat but once, that the long interval between one meal, and the other may enable them to eat at one sitting as much as they used to do in two : thus they eat till their stomachs, overburthened with much food, pall, and sicken, and change the superfluous food into bad humours, which kill a man before his time. I never knew any person who led that kind of life live to be very old. All these old men I have been speaking of would live long, if, as they advanced in years, they lessened the quantity of their food, and eat oftener, but little at a time ; for old stomachs cannot digest large quantities of food ; old men changing, in that respect, to children, who eat several times in the four-and-twenty hours.

Others say, that temperance may, indeed, keep a man in health, but that it cannot prolong his life. To this I answer, that experience proves the contrary ; and that I myself am a living instance of it. It cannot, be said, that sobriety is apt to shorten one's days, as sickness does ; and that the latter abbreviates life is most certain. Moreover, a constant succession of good health is preferable to frequent sickness, as the radical moisture is thereby preserved. Hence it may be fairly concluded, that holy sobriety is the true parent of health and longevity.

O thrice Holy Sobriety, so useful to man, by the services thou renderest him ! thou prolongest his days, by which means he greatly improves his understanding, and by such improvement he avoids the bitter fruits of sensuality, which are an enemy to reason, man's peculiar privilege : those bitter fruits are the passions, and perturbations of the mind. Thou, moreover, freest him from the dreadful thoughts of death. How greatly is thy faithful disciple indebted to thee, since, by thy assistance, he enjoys

joys this beautiful expanse of the visible world, which is really beautiful to such as know how to view it with a philosophic eye, as thou hast enabled me to do ! nor could I, at any other time of life, even when I was young, but altogether debauched by an irregular life, perceive its beauties, though I spared no pains or expence to enjoy every season of life. But I found that all the pleasures of that age had their alloy ; so that I never knew, till I grew old, that the world was beautiful. O truly happy life ! which, over and above all these favours conferred on this old man, hast so improved and perfected his stomach, that he has now a better relish for his dry bread than he had formerly, and in his youth, for the most exquisite dainties : and all this he has compassed by acting rationally, knowing, that bread is, above all things, man's proper food, when seasoned by a good appetite ; and, whilst a man leads a sober life, he may be sure of never wanting that natural sauce ; because, by always eating little, the stomach not being much burthened, need not wait long to have an appetite. It is for this reason that dry bread relishes so well with me ; and I know it from experience, and can with truth affirm, I find such sweetness in it, that I should be afraid of sinning against temperance, were it not for my being convinced of the absolute necessity of eating of it, and that we cannot make use of a more natural food. And thou, kind parent Nature, who attest so lovingly by thy aged offspring, in order to prolong his days, hast contrived matters so in his favour, that he can live upon very little ; and, in order to add to the savour, and do him still greater service, hast made him sensible, that, as in his youth he used to eat twice a-day, when he arrived at old age he ought to divide that food, of which he was accustomed before to make but two meals,

meals, into four; because, thus divided, it will be more easily digested; and, as in his youth he made but two meals in the day, he should, in his old age, make four, provided, however, he lessens the quantity as his years increase. And this is what I do, agreeably to my own experience; and, therefore, my spirits, not oppressed by much food, but barely kept up, are always brisk, especially after eating, so that I am accustomed then to sing a song, and afterwards to write.

Nor do I ever find myself the worse for writing immediately after meals; nor is my understanding ever clearer; nor am I apt to be drowsy; the food I take being in too small a quantity to send up any fumes to the brain. O how advantageous it is to an old man to eat but little! Accordingly I, who know it, eat but just enough to keep body and soul together; and the things I eat are as follow. First, bread, panado, some broth with an egg in it, or such other good kinds of soup or spoon-meat. Of flesh meat I eat veal, kid, and mutton. I eat poultry of every kind. I eat partridges, and other birds, such as thrushes. I likewise eat fish; for instance, the goldney and the like, amongst sea-fish; and the pike, and such like amongst fresh-water fish. All these things are fit for an old man, and, therefore, he ought to be content with them; and, considering their number and variety, not hanker after others. Such old men as are too poor to allow themselves provisions of this kind, may do very well with bread, panado, and eggs; things which no poor man can want, unless it be common beggars, and, as we call them, vagabonds, about whom we are not bound to make ourselves uneasy, since they have brought themselves to that pass by their indolence, and had better be dead than alive; for they are a disgrace to human nature. But, though a
poor

poor man should eat nothing but bread, panado, and eggs, there is no necessity for his eating more than his stomach can digest. And, whoever does not trespass in point of either quantity or quality, cannot die but by mere dissolution. O what a difference there is between a regular and an irregular life ! One gives longevity and health, the other produces diseases and untimely deaths.

O unhappy, wretched Life, my sworn enemy, who art good for nothing but to murder those who follow thee ! How many of my dearest relations and friends hast thou robbed me of, in consequence of their not giving credit to me ! relations and friends whom I should now enjoy. But thou hast not been able to destroy me, according to thy wicked intent and purpose. I am still alive in spite of thee, and have attained to such an age, as to see around me eleven grandchildren, all of fine understanding, and amiable disposition ; all given to learning and virtue ; all beautiful in their persons, and lovely in their manners ; whom, had I obeyed thy dictates, I should never have beheld. Nor should I enjoy those beautiful and convenient apartments which I have built from the ground with such a variety of gardens, as required no small time to attain their present degree of perfection. No ! thy nature is to destroy those who follow thee before they can see their houses or gardens so much as finished ; whereas I, to thy no small confusion, have already enjoyed mine for a great number of years. But, since thou art so pestilential a vice as to poison and destroy the whole world, and I am determined to use my utmost endeavours to extirpate thee, at least in part, I have resolved to counteract thee so, that my eleven grandchildren shall take pattern after me, and thereby expose thee for what thou really art,

a most wicked, desperate, and mortal, enemy of the children of men.

I really cannot help admiring, that men of fine parts, and such there are, who have attained a superior rank in letters, or any other profession, should not betake themselves to a regular life, when they are arrived at the age of fifty or sixty, or as soon as they find themselves attacked by any of the foregoing disorders, of which they might easily recover; whereas, by being permitted to get a-head, they become incurable. As to young men, I am no way surpris'd at them, since the passions being strong at that age, they are of course the more easily overpowered by their baleful influence. But after fifty, our lives should, in every thing, be governed by reason, which teaches us, that the consequences of gratifying our palate and our appetite are disease and death. Were this pleasure of the palate lasting, it would be some excuse; but it is so momentary, that there is scarce any distinguishing between the beginning and the end of it; whereas the diseases it produces are very durable. But it must be a great contentment to a man of sober life to be able to reflect that, in the manner he lives, he is sure that what he eats will keep him in good health, and be productive of no disease or infirmity.

Now, I was willing to make this short addition to my treatise, founded on new reasons; few persons caring to peruse longwinded discourses; whereas short tracts have a chance of being read by many; and I wish that many may see this addition, to the end that its utility may be more extensive.

AN

AN EARNEST EXHORTATION,

Wherein the author uses the strongest arguments to persuade all men to embrace a regular and sober life, in order to attain old age, in which they may enjoy all the favours and blessings that God, in his goodness, vouchsafes to bestow upon mortals.

NOT to be wanting to my duty, that duty incumbent upon every man, and not to loose, at the same time, the satisfaction I feel in being useful to others, I have resolved to take up my pen, and inform those who, for want of conversing with me, are strangers to what those know and see with whom I have the pleasure of being acquainted. But, as certain things may appear to some persons scarce credible, nay, impossible, though actually fact, I shall not fail to relate them for the benefit of the public: Wherefore, I say, being (God be praised!) arrived at my ninety-fifth year, and still finding myself sound and hearty, content and cheerful, I never cease thanking the divine majesty for so great a blessing, considering the usual fate of other old men. These scarce attain the age of seventy without losing their health and spirits, growing melancholy and peevish, and continually haunted by the thoughts of death; apprehending their last hour from one day to another, so that it is impossible to drive such thoughts out of their mind; whereas such things give me not the least uneasiness; for, indeed, I cannot at all make them the object of my attention, as I shall hereafter more plainly relate. I shall, besides, demonstrate the certainty I have of living to a hundred. But, to render this dissertation more methodical, I shall begin by considering
man

man at his birth ; and from thence accompany him through every stage of life to his grave.

I therefore say, that some come into the world with the stamina of life so weak, that they live but a few days, or months, or years ; and it cannot be clearly known to what such shortness of life is owing ; whether to some defect in the father or the mother in begetting them, or to the revolutions of the heavens, or to the defect of nature, subject as she is to the celestial influence. For I could never bring myself to believe that nature, the common parent of all, should be partial to any of her children. Therefore, as we cannot assign the causes, we must be content with reasoning from the effects, such as they daily appear to our view.

Others are born sound, indeed, and full of spirits, but notwithstanding, with a poor weakly constitution ; and of these some live to the age of ten, others to twenty, others to thirty and forty ; yet they do not live to extreme old age. Others again bring into the world a perfect constitution, and live to old age, but it is generally, as I have already said, an old age full of sickness and sorrow, for which they are to thank themselves ; because they most unreasonably presume on the goodness of their constitution, and cannot by any means be brought to depart, when grown old, from the mode of life they pursued in their younger days, as if they still retained all their primitive vigour. Nay, they intend to live as irregularly when past the meridian of life as they did all the time of their youth ; thinking they shall never grow old, nor their constitution be ever impaired. Neither do they consider that their stomach has lost its natural heat, and that they should, on that account, pay a greater regard to the quality of what they eat, and what wines they drink ; and likewise to the quantity of each,

each, which they ought to lessen : whereas, on the contrary, they are for increasing it ; saying, that, as we lose our health and vigour by growing old, we should endeavour to repair the loss by increasing the quantity of our food, since it is by sustenance that man is preserved.

In this, nevertheless, they are greatly mistaken, since, as the natural heat lessens, as a man grows in years, he should diminish the quantity of his meat and drink ; nature, especially at that period, being content with little. Nay, though they have all the reason to believe this to be the case, they are so obstinate as to think otherwise ; and still follow their usual disorderly life. But were they to relinquish it in due time, and betake themselves to a regular and sober course, they would not grow infirm in their old age, but would continue, as I am, strong and hearty, considering how good and perfect a constitution it has pleased the Almighty to bestow upon them, and would live to the age of one hundred and twenty. This has been the case of others, who, as we read in many authors, have lived a sober life, and, of course, were born with this perfect constitution ; and had it been my lot to enjoy such a constitution, I should make no doubt of attaining the same age. But, as I was born with feeble stamina, I am afraid I shall not outlive an hundred. Were others, too, who are also born with an infirm constitution, to betake themselves to a regular life, as I have done, they would attain the age of one hundred and upwards, as will be my case.

And this certainty of being able to live a great age is, in my opinion, a great advantage, and highly to be valued ; none being sure to live even a single hour except such as adhere to the rules of temperance. This security of life is built on good and true natural reasons, which can

never fail; it being impossible, in the nature of things, that he who leads a sober and regular life should breed any sickness, or die of an unnatural death, before the time at which it is absolutely impossible he should live. But sooner he cannot die, as a sober life has the virtue to remove all the usual causes of sickness, and sickness cannot happen without a cause; which cause being removed, sickness is likewise removed; and sickness being removed, an untimely and violent death must be prevented.

And there is no doubt that temperance has the virtue and efficacy to remove such causes; for since health and sickness, life and death, depend on the good or bad quality of the humours, temperance corrects their vicious tendencies and renders them perfect, being possessed of the natural power of making them unite and hold together, so as to render them inseparable, and incapable of alteration or fermenting; circumstances which engender cruel fevers, and end in death. It is true, indeed, and it would be a folly to deny it, that, let our humours be originally ever so good, time, which consumes every thing, cannot fail to consume and exhaust them; and that man, as soon as that happens, must die of a natural death; but yet without sickness, as will be my case, who shall die at my appointed time, when these humours shall be consumed, which they are not at present. Nay, they are still perfect; nor is it possible they should be otherwise in my present condition, when I find myself hearty and content, eating with a good appetite, and sleeping soundly. Moreover, all my faculties are as good as ever, and in the highest perfection; my understanding clearer and brighter than ever, my judgment sound, my memory tenacious, my spirits good, and my voice, the first thing which is apt to fail others, grown so strong and sonorous, that I cannot
help

help chanting out loud my prayers, morning and night, instead of whispering and muttering them to myself, as was formerly my custom.

And these are all so many true and sure signs and tokens that my humours are good, and cannot waste but with time, as all those who converse with me conclude. O how glorious this life of mine is like to be, replete with all the felicities which man can enjoy on this side of the grave, and even exempt from that sensual brutality which age has enabled my better reason to banish! because, where reason resides, there is no room for sensuality, nor for its bitter fruits, the passions and perturbations of the mind, with a train of disagreeable apprehensions. Nor yet can the thoughts of death find room in my mind, as I have no sensuality to nourish such thoughts. Neither can the death of grandchildren, and other relations and friends, make any impression on me but for a moment or two, and then it is over. Still less am I liable to be cast down by losses in point of fortune, (as many have seen to their no small surprise). And this is a happiness not to be expected by any but such as attain old age by sobriety, and not in consequence of a strong constitution; and such may, moreover, expect to spend their days happily as I do mine, in a perpetual round of amusement and pleasure. And how is it possible a man should not enjoy himself, who meets with no crosses or disappointments in his old age, such as youth is constantly plagued with, and from which, as I shall presently shew, I have the happiness of being exempt.

The first of these is to do service to my country. O what a glorious amusement! in which I find infinite delight, as I thereby shew her the means of improving her important estuary or harbour beyond the possibility of its

filling for thousands of years to come ; so as to secure to Venice her surprising and miraculous title of a maiden city, as she really is, and the only one in the whole world : she will, moreover, thereby add to the lustre of her great and excellent surname of Queen of the sea. Such is my amusement ; and nothing is wanting to make it complete. Another amusement of mine is that of shewing this maid and queen in what manner she may abound with provisions, by improving large tracts of lands, as well marshes as barren sands, to great profit. A third amusement, and an amusement too without any alloy, is the shewing how Venice, though already so strong as to be in a manner impregnable, may be rendered still stronger ; and though extremely beautiful, may still increase in beauty ; though rich, may acquire more wealth ; and may be made to enjoy better air, though her air is excellent. These three amusements, all arising from the idea of public utility, I enjoy in the highest degree. And who can say that they admit of any alloy, as in fact they do not ? Another comfort I enjoy is, that, having lost a considerable part of my income, of which my grandchildren had been unfortunately robbed, I, by mere dint of thought, which never sleeps, and without any fatigue of body, and very little of mind, have found a true and infallible method of repairing such loss more than double, by the means of that most commendable of arts, agriculture. Another comfort I still enjoy is, to think that my treatise on temperance, which I wrote in order to be useful to others, is really so, as many assure me by word of mouth, mentioning that it has proved extremely useful to them, as it in fact appears to have been ; whilst others inform me by letter, that, under God, they are indebted to me for life. Still another comfort I enjoy is, that of being able to write with my own hand ; for I write
enough

enough to be of service to others, both on architecture and agriculture. I likewise enjoy another satisfaction, which is that of conversing with men of bright parts and superior understanding, from whom, even at this advanced period of life, I learn something. What a comfort is this, that, old as I am, I should be able, without the least fatigue, to study the most important, sublime, and difficult, subjects!

I must farther add, though it may appear impossible to some, and may be so in some measure, that, at this age, I enjoy at once two lives; one terrestrial, which I possess in fact; the other celestial, which I possess in thought; and this thought is equal to actual enjoyment, when founded upon things we are sure to attain, as I am sure to attain that celestial life, through the infinite goodness and mercy of God. Thus I enjoy this terrestrial life, in consequence of my sobriety and temperance, virtues so agreeable to the deity; and I enjoy, by the grace of the same divine majesty, the celestial, which he makes me anticipate in thought; a thought so lively as to fix me entirely on this object, the enjoyment of which I hold and affirm to be of the utmost certainty. And I hold that dying, in the manner I expect, is not really death, but a passage of the soul from this earthly life to a celestial, immortal, and infinitely perfect, existence. Neither can it be otherwise: and this thought is so superlatively sublime, that it can no longer stoop to low and worldly objects, such as the death of this body, being entirely taken up with the happiness of living a celestial and divine life; whence it is that I enjoy two lives. Nor can the terminating of so high a gratification which I enjoy in this life give me any concern; it rather affords me infinite pleasure, as it will be only to make room for another glorious and immortal life.

Now, is it possible that any one should grow tired of so great a comfort and blessing as this which I really enjoy, and which every one else might enjoy, by leading the life I have led ? an example which every one has it in his power to follow : for I am but a mere man, and no faint ; a servant of God, to whom so regular a life is extremely agreeable.

And whereas many embrace a spiritual and contemplative life, which is holy and commendable, the chief employment of those who lead it being to celebrate the praises of God ; O that they would likewise betake themselves entirely to a regular and sober life ! how much more agreeable would they render themselves in the sight of God ! what a much greater honour and ornament would they be to the world ! They would then be considered as saints indeed upon earth, as those primitive christians were held who joined sobriety to so recluse a life. By living, like them, to the age of one hundred and twenty, they might, like them, expect, by the power of God, to work numberless miracles : and they would, besides, enjoy constant health and spirits, and be always happy within themselves ; whereas they are now, for the most part, infirm, melancholy, and dissatisfied. Now, as some of these people think that these are trials sent them by God Almighty, with a view of promoting their salvation, that they may do penance in this life for their past errors, I cannot help saying that, in my opinion, they are greatly mistaken. For I can by no means believe that it is agreeable to the deity that man, his favourite creature, should live infirm, melancholy, and dissatisfied ; but rather enjoy good health and spirits, and be always content within himself. In this manner did the holy fathers live, and by such conduct did they daily render themselves more acceptable to the divine majesty, so as to work the great and surprising

surprising miracles we read in history. How beautiful, how glorious, a scene should we then behold ! far more beautiful than in those ancient times, because we now abound with so many religious orders and monasteries, which did not then exist ; and were the members of these communities to lead a temperate life, we should then behold such a number of venerable old men as would create surprise. Nor would they trespass against their rules ; they would rather improve upon them ; since every religious community allows its subjects bread, wine, and sometimes eggs, (some of them allow meat), besides soups made with vegetables, fallads, fruit, and cakes, things which often disagree with them, and even shorten their lives. But as they are allowed such things by their rules, they freely make use of them, thinking, perhaps, that it would be wrong to abstain from them ; whereas it would not. It would rather be commendable, if, after the age of thirty, they abstained from such food, and confined themselves to bread, wine, broths, and eggs : for this is the true method of preserving men of a bad constitution ; and it is a life of more indulgence than that led by the holy fathers of the desert, who subsisted entirely on wild fruits and roots, and drank nothing but pure water ; and, nevertheless, lived, as I have already mentioned, in good health and spirits, and always happy within themselves. Were those of our days to do the same, they would, like them, find the road to heaven much easier ; for it is always open to every faithful christian, as our Saviour Jesus Christ left it, when he came down upon earth to shed his precious blood, in order to deliver us from the tyrannical servitude of the devil ; and all through his immense goodness.

So that, to make an end of this discourse, I say, that since length of days abounds with so many favours and

blessings, and I happen to be one of those who are arrived at that state, I cannot (as I would not willingly want charity) but give testimony in favour of it, and solemnly assure all mankind, that I really enjoy a great deal more than what I now mention; and that I have no other reason for writing but that of demonstrating the great advantages which arise from longevity, to the end that their own conviction may induce them to observe those excellent rules of temperance and sobriety. And therefore I never cease to raise my voice, crying out to you, my friends, may your days be long, that you may be the better servants to the Almighty.

LETTER FROM SIGNOR LEWIS CORNARO, TO THE RIGHT
REVEREND BARBARO, PATRIARCH ELECT OF AQUILEIA.

MY LORD,

THE human understanding must certainly have something divine in its constitution and frame. How divine the invention of conversing with an absent friend by the help of writing! How divinely is it contrived by nature, that men, though at a great distance, should see one another with the intellectual eye, as I now see your lordship! By means of this contrivance, I shall endeavour to entertain you with matters of the greatest moment. It is true, that I shall speak of nothing but what I have already mentioned; but it was not at the age of ninety-one, to which I have now attained, a thing I cannot help taking notice of, because, as I advance in years, the sounder and heartier I grow, to the amazement of all the world. I, who can account for
it,

it, am bound to shew, that a man may enjoy a terrestrial paradise after eighty, which I enjoy ; but it is not to be obtained except by temperance and sobriety, virtues so acceptable to the Almighty, because they are enemies to sensuality, and friends to reason.

Now, my lord, to begin, I must tell you, that, within these few days past, I have been visited by many of the learned doctors of this university, as well physicians as philosophers, who were well acquainted with my age, my life, and manners ; knowing how stout, hearty, and gay, I was ; and in what perfection all my faculties still continued ; likewise my memory, spirits, and understanding, and even my voice and teeth. They knew, besides, that I constantly employed eight hours every day in writing treatises, with my own hand, on subjects useful to mankind, and spent many hours in walking and singing. O, my lord, how melodious my voice is grown ! Were you to hear me chant my prayers, and that to my lyre, after the example of David, I am certain it would give you great pleasure, my voice is so musical. Now, when they told me that they had been already acquainted with all these particulars, they added, that it was, indeed, next to a miracle, how I could write so much, and upon subjects that required both judgment and spirit. And, indeed, my lord, it is incredible what satisfaction and pleasure I have in these compositions. But, as I write to be useful, your lordship may easily conceive what pleasure I enjoy. They concluded by telling me, that I ought not to be looked upon as a person advanced in years, since all my occupations were those of a young man, and by no means like those of other aged persons, who, when they have reached eighty, are reckoned decrepid. Such moreover, are subject, some to the gout, some to the sciatica, and some to other complaints, to be relieved

conclusion to be false. Thus, you see, my lord, how apt men are to deceive themselves in their judgment of things, when such judgment is not built upon a solid foundation. And, therefore, to undeceive them, and set them right, I made answer, that their conclusion was false, as I should actually convince them, by proving, that the happiness I enjoyed was not confined to me, but common to all mankind, and that every man might equally enjoy it; since I was but a mere mortal, composed, like all others, of the four elements; and endued, besides existence and life, with rational and intellectual faculties, which are common to all men. For it has pleased the Almighty to bestow on his favourite creature, man, these extraordinary blessings and favours above other animals, which enjoy only the sensible perceptions, in order that such blessings and favours may be the means of keeping him long in good health; so that length of days is an universal favour granted by the Deity, and not by nature and the stars.

But man being in his youthful days more of the sensual than of the rational animal, is apt to yield to sensual impressions; and, when he afterwards arrives at the age of forty or fifty, he ought to consider, that he has attained the noon of life by the vigour of youth, and a good tone of stomach; natural blessings, which favoured him in ascending the hill; but that he must now think of going down, and approaching the grave with a heavy weight of years on his back; and that old age is the reverse of youth, as much as order is the reverse of disorder. Hence it is requisite he should alter his mode of life in regard to the articles of eating and drinking, on which health and longevity depend. And as the first part of his life was sensual and irregular, the second should be the reverse, since nothing can subsist without order, especially the life of man, irregularity
being

being without all doubt prejudicial, and regularity advantageous, to the human species.

Besides, it is impossible in the nature of things, that the man who is bent on indulging his palate and his appetite should not be guilty of irregularity. Hence it was that, to avoid this vice, as soon as I found myself arrived at maturer years, I embraced a regular and sober life. It is no doubt, true, that I found some difficulty in compassing it; but, in order to conquer this difficulty, I beseeched the Almighty to grant me the virtue of sobriety; well knowing that he would graciously hear my prayer. Then, considering, that when a man is about to undertake any thing of importance, which he knows he can compass, though not without difficulty, he may make it much easier to himself by being steady in his purpose; I pursued the same course. I endeavoured gradually to relinquish a disorderly life, and to accustom myself insensibly to the rules of temperance: and thus it came to pass that a sober and regular life no longer proved uneasy or disagreeable; though, on account of the weakness of my constitution, I tied myself down to such strict rules in regard to the quantity and quality of what I eat and drink.

But others, who happen to be blessed with a stronger temperament, may eat many other kinds of food, and in greater quantities; and so of wines; whereas, though their lives may still be sober, they will not be so confined as mine, but much more free. Now, on hearing these arguments, and examining the reasons on which they were founded, they all agreed that I had advanced nothing but what was true. Indeed the youngest of them said, that though he could not but allow the favour or advantages I had been speaking of to be common to all mankind, yet I enjoyed the special grace of being able to relinquish with ease

case one kind of life, and embrace another ; a thing which he knew by experience to be feasible, but as difficult to him as it had proved easy to me.

To this I replied, that, being a mortal like himself, I likewise found it a difficult task ; but it did not become a person to shrink from a glorious but practicable undertaking on account of the difficulties attending it, because, in proportion to these difficulties, is the honour he acquires by it in the eye of man, and the merit in the sight of God. Our beneficent Creator is desirous, that as he originally favoured human nature with longevity, we should all enjoy the full advantage of his intentions ; knowing that, when a man has passed eighty, he is entirely exempt from the bitter fruits of sensual enjoyments, and is entirely governed by the dictates of reason. Vice and immorality must then leave him ; hence God is willing he should live to a full maturity of years ; and has ordained that whoever reaches his natural term, should end his days without sickness by mere dissolution, the natural way of quitting this mortal life to enter upon immortality, as will be my case. For I am sure to die chanting my prayers ; nor do the dreadful thoughts of death give me the least uneasiness, though, considering my great age, it cannot be far distant, knowing, as I do, that I was born to die, and reflecting that such numbers have departed this life without reaching my age.

Nor does that other thought, inseparable from the former, namely the fear of those torments to which wicked men are hereafter liable, give me any uneasiness ; because I am a good christian, and bound to believe, that I shall be saved by the virtue of the most sacred blood of Christ, which he has vouchsafed to shed, in order to free us from those torments. How beautiful the life I lead ! how hap-

py my end ! To this, the young gentleman, my antagonist, had nothing to reply, but that he was resolved to embrace a sober life, in order to follow my example ; and that he had taken another more important resolution, which was, that, as he had been always very desirous to live to be old, so he was now equally impatient to reach that period, the sooner to enjoy the felicity of old age.

The great desire I had, my lord, to converse with you at this distance has forced me to be prolix, and still obliges me to proceed, though not much farther. There are many sensualists, my lord, who say, that I have thrown away my time and trouble in writing a treatise on temperance, and other discourses on the same subject, to induce men to lead a regular life ; alleging, that it is impossible to conform to it, so that my treatise must answer as little purpose as that of Plato on government, who took a great deal of pains to recommend a thing impracticable ; whence they inferred that, as his treatise was of no use, mine will share the same fate. Now this surprises me the more, as they may see by my treatise, that I had led a sober life for many years before I had composed it ; and that I should never have composed it, had I not previously been convinced that it was such a life as a man might lead ; and, being a virtuous life, would be of great service to him ; so that I thought myself under an obligation to represent it in a true light. I have the satisfaction now to hear, that numbers, on seeing my treatise, have embraced such a life ; and I have read, that many, in times past, have actually led it ; so that the objection to which Plato's treatise on government is liable can be of no force against mine. But such sensualists, enemies to reason, and slaves to their passions,
ought

ought to think themselves well off, if, whilst they study to indulge their palate and their appetite, they do not contract long and painful diseases, and are not, many of them, overtaken by an untimely death.

Leonardus Lessius, a learned jesuit of Louvaine, who lived about the end of the sixteenth century, was so much pleased with Cornaro's Treatise on sobriety, that, purely to recommend it, he has written a book, entitled Hygiasticon, or the True method of preserving life and health to extreme old age. In this book he praises a sober life as the principal means of health. By a sober life, he understands, that we should neither eat nor drink more than what is necessary for our respective constitutions, in order to perform the functions of the mind with ease. Or, to be more particular, he says, that the proper measure of meat and drink for every individual is such a quantity as his stomach will be able to digest perfectly well, and will be sufficient to support him under the employment of body or mind that Providence has appointed for him. But to prevent mistakes with regard to what the stomach may be perfectly able to digest, and to what may be thought sufficient to support men under their respective occupations, he recommends the following rules :

First, He who eats or drinks such a quantity as renders him unfit for any exertion of the mind to which his profession calls him, has certainly exceeded, and ought to retrench. And he, who in bodily labour or exercise, was active and nimble before meals, if he becomes heavy and dull after meals, has certainly transgressed; for the true end of eating and drinking is to refresh, and not to oppress, the body.

Second,

Second, though there cannot be a certain and invariable measure prescribed to all persons, because of the difference of ages, constitutions, and occupations, yet, generally speaking, to those who are old, or of a tender constitution, and live a sedentary life, twelve, thirteen, or fourteen, ounces of solid food, including bread, flesh, fish, and eggs, together with an equal* quantity of drink, will be sufficient. And this rule has been verified by the experience chiefly of those whose proper employment has been study and meditation.

Third, the quality † of people's food and drink is little to be regarded, if it is but plain, and such as common use has recommended, and does not particularly disagree with him who uses it, provided the quantity be properly adjusted.

Fourth, to cure you of your fondness for high-living, consider these delicacies you sit down to, not as they appear on the table, but as they will be quickly altered after you have eat them; for the richer their flavour and taste is now, the more corrupted and acrimonious they will become in your body, and the more hurtful will be their consequences.

Our author, in the *last* place, proves the advantages of sobriety by the experience of such as made trial of it; some of whom lived in the deserts, on bread, dates, salad, and water, to a hundred years and upwards. Paul, the hermit, says he, died at the age of 115 years; of

* In this he is mistaken, for the quantity of drink should exceed that of the solid food, in almost all circumstances of life.

† This rule is calculated for persons of a strong constitution only, but not for the puny or delicate.

which he spent near a hundred in the desert, living, for the first forty, on dates and water only, and for the remaining time, on bread and water, as Jerom testifies. St. Anthony lived to 105, of which he passed more than eighty in the wilderness on bread and water, with the addition, at last, of a little fallad, according to Athanasius. Arsenius, the preceptor of the emperor Arcadius, lived to 120, of which he spent the first sixty-five in the social world, and the other fifty-five in the desert, with great abstemiousness. And Epiphanius lived with equal austerities to almost 115.

But the most recent example, and the most to his purpose, was that of Lewis Cornaro, who died at Padua, when he was above a hundred years old, anno 1566.

NUMBER

NUMBER III.

OF THE AUTHORS WHO HAVE WRITTEN ON HEALTH AND
LONGEVITY FROM THE TIME OF CORNARO TO THAT OF
SANCTORIUS.

THE author of the History of health has given us a short account of some of the authors who wrote on health and longevity, between the age of Cornaro and that of Sanctorius ; and as their works are either too voluminous or too insignificant to be inserted in this collection, I shall therefore transcribe the short memorandums which M^rKenzie has given of them. The only book therein mentioned, entitled to any particular attention, is the one by Cardan. The great Boerhaave has so strongly recommended it, that I was induced to examine it with some attention, and to propose giving an analysis of it ; but, upon an examination, it turned out to be about 300 pages folio, drawn up in so distinct and methodical a manner, and containing so many judicious observations, that, instead of an abstract or analysis, if these inquiries are to be prosecuted, I should think a translation of the whole advisable. In the interim, the general view which M^rKenzie has given of Cardan's book, and the other works published about the same time, may be considered as sufficient.

Thomas Philologus of Ravenna addressed to Pope Julius III. a treatise, "*De vita ultra annos 120 protrahenda*," which he professes to have collected with great labour and assiduity, from the writings of the learned. He complains that voluptuousness and avarice had shortened the lives of the noble Venetians to such a degree, that whereas, formerly several senators every one at least an hundred years old, used to appear in the streets together, venerable by their white locks and rich robes, there was not one to be seen in our author's time who had reached ninety: he therefore recommends temperance and purity of manners as the principal means to promote longevity. He recommends likewise, a pure air to those who desire length of days; and is the first physician, I know of, who censures the pernicious custom of having public burying places in populous cities, which taint the atmosphere with cadaverous steams, and frequently occasion fatal distempers. "I am astonished," continues he, "that the moderns should approve of a practice which the wisest nations of antiquity prohibited by the most solemn laws."

About the middle of the sixteenth century, Vidus Vidius, a Florentine, published a large volume on the preservation of the health of the body in general,* and of every member in particular, cleared (as he pretends) from all the errors both of the Greeks and the Arabians. He had been invited to Paris, by Francis I. and taught physic there, during the life of that august and munificent patron of learning; and, after his death, was called home anno 1557, and highly encouraged by Cosmus, duke of Tuscany.

* *De tuenda valetudine generatim libri sex, membratim libri quatuordecim.*

In this performance concerning health, Vidius has so closely adhered to the theory of Galen, "without one instance from his practice to enliven it," and is so full of the endless distinctions and divisions of Avicenna, that there is not one new or entertaining precept to be met with in his whole work, though he was undoubtedly a man of great literature.

The famous Hieronimus Cardanus is another of our voluminous writers on the subject of health, but has not added many rules of great importance, to those mentioned by former physicians. He was descended from a noble family in Milan, and born at Pavia (whither his mother fled from the plague) anno 1509. He is magnified by some, for his extensive knowledge in the sciences; and was sent for from Italy, as far as Scotland, to cure the archbishop of St. Andrews, which he, did of a dangerous illness: but others hold him in small esteem. His book on health and long life is reckoned one of his best performances; but he is a very unequal writer. He takes upon him to blame Hippocrates and Galen, in things wherein all the world think them to be right, except himself. He exclaims, for example, against using any exercise that can fatigue a man in the smallest degree, or throw him into the most gentle sweat, or in the least accelerate his respiration; and gravely observes, that trees live longer than animals, because they never stir from their places: he maintains that Galen's treatise on health is full of mistakes; and, as a proof of this, observes, that Galen himself died at seventy-seven, which cannot properly be called old age.

"Poor Cardan did not then foresee that this objection (suppose it to have any weight) might one day be urged more justly against himself, who died at seventy-five."

But, to do him justice, he was the first who gave us

marks or symptoms of longevity, which, when they meet in the same person, are, for the most part, true indications of long life, viz. *1st*, to be descended from a long lived family, at least by one of the parents; *2^{dly}*, to be of a cheerful, easy, disposition, undisturbed by any irksome care, or disquietude of mind; and, *3^{dly}*, to be naturally a long and sound sleeper.

The quantity of aliment which he recommends is very small, after the manner of Cornaro, whom he admires much; and, though the abstemiousness which he enjoins, would ill agree with persons of an active and laborious life, and soon exhaust their strength, and render them useless, yet to people of a delicate constitution, full of care and disquietudes, or confined to a sedentary life, the measure of aliment which he allows, under the restrictions annexed to it, is perhaps the best rule of health in his book.

“The true measure of eating and drinking,” says he, “is, that a man shall feel no fulness or weight in his stomach, but shall be able to walk or write immediately after meals, in case either should be necessary; that his sleep shall not be disturbed or shortened by his supper; that he shall have neither headach, nor bad taste in his mouth next morning; and that he shall awake refreshed and cheerful after his night’s rest.”

His fourth book, on old age, is the most entertaining part of the whole performance. Who can forbear being pleased with his cheerful and social disposition at seventy-three, and with his lively hope, which he stretches beyond the grave? “For my part,” says he, “I am more joyful now than ever I was, in my youth; I shall die, ’tis true, and leave my friends behind me, but I shall find others where I go; and I know that those who are left behind will quickly follow me.”

Soon

Soon after the death of Cardan, Alexander Trajanus Petronius published his book concerning the aliment of the Romans, and the preservation of their health, which he dedicates to Pope Gregory XIII. In it he treats of the situation, air, winds, waters, and healthy seasons, of Rome; and also of the food, solemn fasts, and epidemical ailments, of the Romans. This book is written with great judgment and accuracy, and is an excellent model for any physician who inclines to do the same good office to the city in which he resides.

Several authors, besides those already named, have written upon the conservation of health in the sixteenth century, before the celebrated Sanctorius. I shall mention the most eminent among them, for the sake of the curious, who may have a mind to consult them, but shall not dwell long upon their works; and perhaps there have been but few* improvements or variations in this branch of physic, from the times of the Greeks and Arabians down to Sanctorius, who flourished in the close of this century.

These authors stand in order of time as follows:

Levinus Lemnius was born in Zeland anno 1505, and practised physic for several years with good success; but, having had the misfortune to lose his wife, entered into holy orders; in consequence of which, his writings partake both of morality and physic. His exhortation to lead a virtuous life, in order to secure the health both of body and mind, sets forth, that "health is preserved by temperance in eating and drinking, wherein excess is indecent

* Les regles pour la conservation de la santé, et ce qu'il y a à dire sur les qualitez et le choix des alimens, étant un sujet où il y a le moins de variations depuis les tems les plus anciens jusqu' au nôtre. Le Clerc Plan de l'histoire de la medecine, pag. 3.

“ as well as pernicious, and by a moderation in all the
 “ other articles which Galen * calls the preservatives of
 “ health. but moderns call the six non-naturals, not that
 “ they are by any means unnatural, but because they
 “ are not within the body like our blood and humours,
 “ though they have influence enough to hurt or destroy
 “ it, when a bad use is made of them.”

Jason Pratenſis, a Zelander, likewise wrote a treatise
De tuenda ſanitate, anno 1538. He regrets that his many
 avocations, and a nine month's illneſs, did not permit him
 to write up to the idea which he had of his ſubject. He is,
 nevertheless, a lively writer, and a good claſſical ſcholar,
 which makes his book very entertaining, though it has
 little or nothing new with reſpect to health.

Antonius Fumanellus Veronenſis wrote *De ſenſum re-
 gimine*, anno 1540, wherein he declares, “ that he follows
 “ the ſentiments of Hippocrates and Galen.”

Joannes Valverduſ de Hamuſco, a Spaniard, published
 his treatiſe, *De animi et corporis ſanitate ad Hieronimum Ka-
 rallum Cardinalem*, anno 1552. It is ſhort, but written with
 a great deal of good ſenſe; and as the author had an oppor-
 tunity of travelling into diſtant countries, his obſervations
 enabled him to add this new rule to the old ones, viz. That
 it is neceſſary to diverſify our method of living according
 to the nature of the climate in which we may chance to
 reſide. “ When I was in Scotland † (ſays he) I could
 “ not forbear eating more frequently than I uſed to do
 “ in my own country.”

* Lempius did not advert, that Galen was himſelf the perſon who intro-
 duced the appellation non-natural.

† Cum ego, qui meridionalē magis incolō regionem, apud Scotos
 agerem, non poteram me continere, quin pluribus vicibus cibum aſſume-
 rem, quam antea eſſem conſuectus.

Guilielmus Gratarolus, a Piedmontese, published his book, *De literatorum, et eorum qui magistratum gerunt, conservanda valetudine*, anno 1555. He inculcates a moderation in the five following articles; namely, eating, drinking, labour, sleep, and concubinage; and affirms that those great fathers of physic, Hippocrates and Galen, have recommended the same moderation, as the principal means to secure health.

Henricus Ranzovius, a Danish nobleman, wrote *De conservanda valetudine in privatum liberorum suorum usum*, anno 1573. The first and most valuable precept in his book, is, to worship and serve God, and to pray to him for health; "for (continues he) though the stars have their influence, it will be always true," that

Astra valent aliquid, plus pia vota valent.

Æmilius Dufus composed his book, *De tuenda valetudine ad Carolum Sabaudie Ducem*, anno 1582; but copies Galen in every thing that is material.

Lastly, Ferdinandus Eustatius, son to the famous anatomist Bartholomæus Eustachius, wrote *De vitæ humane facultate medicâ prorogatione*, dedicated to Pope Sixtus V. anno 1589. This author has indeed refuted many arguments, alleged to prove that the medical art is of no use in prolonging life; but is quite silent as to the means by which that end may be attained.

It would make this compilation too tedious to take notice here of all these authors that have advanced some fanciful speculations on the different proportions of food at different meals, which they imagined to be of great importance to health; such, for instance, as Oddi de Oddis, who, in his treatise *De cænæ et prandii portione*, published anno 1570, asserts, that people should make supper their fullest and dinner their lightest meal.

NUMBER IV.

SANCTORIUS.

SANCTORIUS SANCTORIUS was born in Istria, a territory in Italy, belonging to the Venetians, and studied at Padua, where he afterwards became a celebrated professor. He was from thence invited to practise physic at Venice, for the benefit of the citizens; and though he left the university, yet the republic, as a mark of esteem, continued his salary to his death, which happened *anno* 1636, in the seventy-fifth year of his age.

He opened a new scene in physic, to which physicians and philosophers were in a great measure strangers before his time, and upon experiments made with amazing diligence and assiduity, for thirty years, he has established several laws of insensible perspiration, a knowledge of which is so useful for the preservation of health.

In order that the reader may be more fully master of this subject, it is proposed, in the *first* place, to give a translation of the work which Sanctorius called *Medicina Statica*; or Rules of health, and afterwards to give a short account of the discoveries which have since been made regarding insensible perspiration.

MEDICINA

MEDICINA STATICA, OR RULES OF HEALTH,

**IN EIGHT SECTIONS OF APHORISMS, ORIGINALLY WRITTEN
BY SANCTORIUS, CHIEF PROFESSOR OF PHYSIC AT PADUA.
ENGLISHED BY J. D. ORIGINALLY PRINTED AT LONDON,
ANNO 1676.**

SANCTORIUS TO THE READER.

IT is a thing new, and not before heard of in medicine, that any one should be able to find out the exact weight of insensible perspiration, nor has any one of the philosophers or physicians attempted the doing of any thing in that part of the medical faculty. I am the first that has essayed it, and (if I am not mistaken), brought the art to perfection, by reason and the experience of thirty years. I have thought it fitter to deliver it in an aphoristical, than a diexodical method, for several reasons: as *first*, that so I might imitate our great dictator, whose steps I have always thought it an honour to follow. *Secondly*, I was in a manner necessitated to do so, in regard that the experiments themselves, wherein I had spent many years, did naturally so lead me to this aphoristical way of doctrine, as that I have digested the aphorisms, excellently well connected amongst themselves, in this wonderful order, as bees having first gathered the honey from a great variety of flowers, do afterwards,

terwards, in an excellent order and economy, dispose it, wrought up to perfection, into the little receptacles of their honey-combs.

As to the advantages of the art, I shall say nothing, since it is known to all, of how great concern in the medical faculty, the knowledge of insensible perspiration is. Only I would have the kind reader take this one advertisement, that since the state of human affairs is such that men are more apt enviously to oppose, than studiously to promote, the advancement of new designs, I know that many, not only among the vulgar, but also among the learned, not conducted by a love of the truth, but hurried away by ambition, or the vain litchery of contradiction, or pure envy, will rise up against this new art, and will heavily inveigh against it, though they are not so much as acquainted with the very name of it. But if they are desirous to be followers of the truth, I shall so far satisfy them all, as that they shall not only apprehend the pure refined truth in their minds and understandings, but they shall see it with their eyes, and feel it with their hands, if they shall but strictly examine, by the balance, all those things which I have delivered in this book, concerning the ponderation of insensible perspiration, its causes, time, advantages, and disadvantages, excess and defect, as also of the air, meats, drinks, and the other six non-natural things, by which perspiration is obstructed, or advanced.

Let them not therefore, with a supercilious arrogance, make a light account of this balance, or, like smatterers in knowledge, calumniate this most excellent art, inasmuch as I shall not think they deserve any other answer, than that smart raillery of the poet Persius; when blinding themselves like the Andabata, and being obstinate truth-haters, they

they discover to all the world, that they are not only dull Euboeans and Cordubans, in the perception of the truth, but also most frivolous Aristarchuses and critics in their censures of it.

AN ACCOUNT OF THE WEIGHING CHAIR.

THE aphorisms comprehended in our book of *static medicine*, published some years since, are found to be true, by the use of the chair placed at the frontispiece.

From which chair we gain two advantages; the former by finding out the daily insensible perspiration of our bodies; which perspiration not well considered, medicine proves for the most part vain and ineffectual; for all indispositions almost are the productions of a lesser or larger perspiration than is requisite.

The latter, in that, having seated ourselves in this chair, we perceive, during our refection, when we are come to that just proportion of meat and drink, beyond which, or short of which, we are prejudiced.

The chair is set as it is represented in the aforesaid figure wherein the beam is fastened to the rafters, at a secret place, in a room above that where you take refection, because it would be somewhat unsightly in the same room; as also by reason of the unlearned, to whom all things that are unusual seem ridiculous. Now the chair, being a finger's breadth distant from the floor, stands firm, so as that it cannot easily be shaken.

When, therefore, by reason of the refection we have taken, we are come to the just weight and measure before prescribed, then the remote part of the beam is a little elevated,

vated, and the chair withal immediately descends a little. That descent of the chair tells the person sitting in it, that he has taken the requisite quantity of his refection.

Now, what quantity or weight of wholesome meats is convenient for every one, and how much the insensible perspiration ought to be in their respective bodies, to-wit, that perspiration which is commodiously weighed by the chair, any one may easily understand by our book of *Static medicine*.

THE SECTIONS.

1. *Of the Ponderation of insensible Perspiration.*
2. *Of Air and Waters.*
3. *Of Meat and Drink.*
4. *Of Sleep and Vigilance.*
5. *Of Exercise and Rest.*
6. *Of Venerie.*
7. *Of the Affections of the Mind.*
8. *An Answer to the Staticomastix.*

Rules

RULES OF HEALTH.

THE FIRST SECTION.

OF INSENSIBLE PERSPIRATION, AND THE EXACT WEIGHT THEREOF.

I. If the addition of those things that are deficient, and the subtraction of those that are exuberant, be daily made, as to quantity and quality, such as it ought to be, lost health would be recovered, and the present always preserved.

II. If the physician, who has the oversight of other mens' health, be capable of judging only of the sensible addition, and evacuation, and knows not the quantity of their daily insensible perspiration, he does not cure, but deceive them.

III. He only, who knows to what quantity, and when, the secret perspiration of a man's body amounts to more or less, shall find out how much, and when any thing ought to be added or subtracted, in order to the preservation or recovery of his health.

IV. Insensible perspiration alone is commonly wont to exceed all the sensible perspirations put together.

V. Insensible perspiration is made either by the pores of the body, which is transpirable in all its parts, and is inclosed in the skin as it were in a net; or by respiration performed by the mouth, which, in one day, commonly amounts to about half a pound: for that may be discovered by the dewy drops upon a looking-glass, if it be set close to the mouth.

VI. If the meat and drink taken in one day amount to the weight of eight pounds, the insensible transpiration ordinarily amounts to five pounds, or thereabouts.

VII. The quantity of insensible transpiration admits of some variety, according to the diversity of nature, climate, seasons, age, diseases, aliment, and other things, that are non-natural.

VIII. It may be easily computed what was the quantity of the nocturnal perspiration, and that of the sensible excrements, by weighing the body in the morning, before and after sensible excretion.

IX. If the weight of the body begin to be augmented more than it is wont, without any greater addition of meat, and drink, or a retention of the sensible excrements, there ensues a difficulty of breathing.

X. The body is preserved in the same state of health when it returns to the same weight, without any unusual sensible evacuation: but if it be reduced to the same weight, by a more than ordinary evacuation, by urine, or stool, it begins to recede from its former health.

XI. If it be perceived by ponderation, that there hath been any obstruction of the perspiration, there will succeed, in the subsequent days, either a more plentiful perspiration, or some more abundant sensible evacuation, or some symptom of an evil habit of the body, or a fever.

XII. Much perspiration, and a plentiful and more than usual sensible evacuation, are not consistent together.

XIII. If any one does sensibly evacuate more than is requisite, his perspiration is less than is requisite.

XIV. It is an ill sign, when a man goes to stool, urines, or sweats, more than is requisite, and perspires less than he should do.

XV.

xv. If the body be daily reduced to the same weight, without any alteration in the evacuation of those things that are perspirable, it will need no crisis, and will be continued in a sound posture.

xvi. When the body is one day of one [weight, and another day of another, it argues an introduction of evil qualities into it.

xvii. That weight, which to any one is such as that, when he goes up some steepy place, he feels himself lighter than he is wont, is the exact standard of good health.

xviii. Evil qualities are the productions of excess, but we must not affirm the contrary, to-wit, that good qualities are the productions of defect.

xix. Not only the weight, but the excess also, is diminished, either by the evacuation of the sensible or insensible crude matter, or by that of the sensible or insensible concocted matter. The latter conduces to health, the former takes away the excess, but leaves the ill quality behind.

xx. There are two kinds of insensible transpiration: the one is immediately made after sleeping, upon the completing of the concoction, and after this there is an augmentation of a man's strength; the other in the time of vigilance; and this latter is occasioned by crude humours; and by reason thereof the strength is impaired: for it is performed with more or less violence, answerably to the greater or less motion of the vigilance.

xxi. That perspiration which eases the body of a great, and that an unprofitable, burthen, is not that which is attended with sweating, but that invisible perspiration or breathing, such as is that which, in the space of four-and-

twenty hours, in the winter time, may exhale fifty ounces, or more.

XXII. Invisible perspiration becomes visible, either when there is an excess of nutriment, or when there is a remission of heat, or by reason of violent motion.

XXIII. Insensible perspiration, attended by sweating, is not good; because sweating abates the strength of the fibres. Yet sometimes it is accounted good, because it occasions a diversion from a greater evil.

XXIV. The more subtile and free from moisture the invisible perspiration is, the more healthy it is.

XXV. All the liquid excrements are the more weighty, and fall down to the bottom; the thick are lighter, and keep up on the top, such as are hard and thick dregs, spittles, and others of that kind.

XXVI. Liquid excrements, allowing an equality as to quantity, take off a greater burthen from the body, than the hard and consistent.

XXVII. Liquid meats are also the more weighty, and the solid the more light; bread and flesh are light, wine and broaths are heavy. A cup of wine is of equivalent weight to a piece of bread, though above thrice as big as it in bulk.

XXVIII. When the body seems to be more burthensome to a man, when it is not really so, he is in a worse condition than if it seem and is felt to be such, when it is really such.

XXIX. The weight of an animal may be considered two ways, for these two things are consistent, to-wit, that the body may be more weighty than usual, and yet the person fancy himself lighter; and, on the contrary, that the body may be lighter than usual, yet the party feel himself heavier.

XXX.

xxx. If these two things concur, to-wit, that a man feel himself lighter than he is, and yet is not really so, it is an argument of a most healthful constitution.

xxxI. That body which is reduced to a less weight, than is proportionable to the just computation of its healthful state, is in a worse condition than that which acquires a greater weight than is proportionable to its healthfulness.

xxxII. When the body, by reason of any exercise of itself, or of the mind, becomes of less weight, there immediately ensues a diminution of its vigour; which does not happen if it becomes of less weight after sleep, when there is a perfect concoction.

xxxIII. If without any precedent violence there be a diminution of the weight, and an impairing of the vigour, the reason is, because there is not so much restored as had been lost.

xxxIV. There are but three ways whereby an animal is weakened, either while the weight of the body is augmented, without any impairing of its vigour; when the vigour is diminished, the same weight of the body still remaining; or, lastly, when both vigour and weight admit of diminution.

xxxV. That weariness which ensues upon the body's becoming less strong, and of less weight, is more dangerous than any other; for ponderosity is a kind of strength.

xxxVI. The weight of the body communicates strength to us, when we either draw any thing downwards, or carry, turn, or thrust, it.

xxxVII. The strength of an old man does many times depend more on the weight, than the vigour, of his body:

an old animal of little weight may live a long time, but cannot be strong.

xxxviii. If, after sleeping, the body be reduced to its usual weight, without feeling any trouble, it is well ; for it argues perfect concoction ; but if with trouble, it is ill.

xxxix. The body does not fall into any disease upon external miscarriages, unless it have some of the entrails prepared for it : that preparation is discovered by the more or less than usual weight, occasioned not without some precedent disturbance.

xl. If nature be obstructed while she is employed in the office of perspiration, she becomes presently defective in divers others.

xli. When the head aches, the body receives a sudden check in perspiration, and becomes more ponderous.

xlII. The first seeds of diseases are more certainly discovered by the alteration of the unusual perspiration, than by the obstruction of the offices.

xlIII. If, by ponderation, thou shalt find that the matter of usual perspiration is retained in the body, and that the party does neither sweat nor urine for some days after, infer thence that the retained matter prognosticates future corruption.

xliv. But if by ponderation thou shalt find, that upon some violent cause, the perspirable matter is more than usually emitted out of the body, be assured, that the place where the perspirable matters had been lodged, and whence they were violently evacuated, is filled with crudities, which are crowded into the smallest passages.

xlv. Yet if those crudities which so force their way in, could, as to all parts, be rendered fluid and perspirable, it were well ; but if not, the part wherein they are contained

contained first becomes hard, like leather, and at last scirrhus.

XLVI. If that which is perspirable should not be dissipated, either by nature, or some feverish heat, the body would be immediately prepared for a malignant fever.

XLVII. Such as are in fevers are as likely to grow worse and worse, if their perspiration be diverted by the excessive applications of medicines from an unskilful physician, as it might be if diverted by the miscarriages of the patients themselves.

XLVIII. A small quantity of *cassa* does not divert perspiration, does not impair the strength, but only eases the body of a superfluous weight: but other medicines contribute more to evacuation, are diffused to the more remote parts, and render the body lighter; and yet the meat and drink which is received afterwards fill up the evacuated passages; thence the belly and bladder are exciccated, and soon after the body commonly becomes more ponderous.

XLIX. Any pain or grief of the body obstructs the passage of that perspirable matter which is concocted.

L. Any cold, even the least that we feel in the night while we are asleep, obstructs perspiration.

LI. One of the most frequent causes that hinder perspiration in the summer time is the often turning of our bodies in bed.

LII. There are three internal causes of the obstruction of perspiration, nature's being otherwise employed, diversion, and want of strength.

LIII. Hence it appears by a statical ponderation, that on the day a man takes physic, and during the space of three hours after refection, there is little perspiration:

for on such day of taking phyfic nature is buſied about ſenſible evacuation; and after meat ſhe is intent on the firſt concoction.

LIV. In fluxes and vomiting perſpiration is obſtructed, becauſe it is diverted.

LV. A burthenſome weight of garments is a hinderance to perſpiration, becauſe they abate a man's ſtrength.

LVI. The body does not perſpire every hour after the ſame rate, in regard that after refection, in the ſpace of five hours, it is commonly wont to exhale a pound, or thereabouts; from the fifth hour to the twelfth, about three pound; from the twelfth to the ſixteenth (at which time we are to take refection, or phyfic) hardly half a pound.

LVII. He who takes his refection, or is evacuated by phyfic, during the hours of greateſt perſpiration, ſuch as are, for the moſt part, thoſe of the morning, is highly injured; becauſe, preſently after meat, as alſo after phyfic, perſpiration is extremely diverted.

LVIII. The ſecret and inſenſible perſpiration eaſes us more than all the ſenſible ones put together; for, after ſleep, before there be any evacuation of the ſenſible excrements, every one feels himſelf lighter, becauſe he is really become lighter, by three pound, or thereabouts.

LIX. In the ſpace of one night, there are commonly evacuated, of urine, ſixteen ounces, more or leſs; of concocted excrements, by ſtool, four ounces; and by occult perſpiration, forty, and above.

LX. There are many, who, in the ſpace of four-and-twenty hours evacuate as much, by inſenſible perſpiration, as they do by ſtool in the ſpace of fifteen days.

LXI. How comes it then, that moſt of our country-men, in all diſeaſes, mind only the evacuation by ſtool

or

or urine, and hardly ever think of insensible perspiration?

LXII. If in the night thou hast perspired more than usually, but without sweating or any disturbance, be assured of thy being in perfect health.

LXIII. Then are we at the greatest distance from any disease, when we are come to the mean proportion of the latitude of healthy ponderation, not through spontaneous sensible evacuation, or that prescribed by the physician, or yet by fasting, but by the insensible perspiration which comes by sleep, after perfect concoction.

LXIV. What quantity of perspiration is convenient for every one, in order to his continuance in a most healthful constitution of body, you will thus find out. Observe in the morning, after a somewhat plentiful supper over night, that sort of greater perspiration, which may be completed in thyself in the space of twelve hours; grant it to have amounted to fifty ounces, some other morning after fasting over night, yet with this proviso, that thou didst not exceed at thy dinner the day before, make the same observation; let us admit the perspiration to have amounted to twenty ounces: this foreknown, pitch upon that moderate proportion of meat and other non-natural causes, which will be likely to reduce thee daily to the mean between fifty and twenty ounces; and that mean will be thirty-five ounces. Thus mayest thou live a long and healthful life, nay, haply arrive to that of a hundred years.

LXV. The healthful bodies of men, and such as are most moderate in their diet, become every month more than usually ponderous, to-wit, by one pound or two, and are reduced to the usual weight about the month's end,

as it happens to women, but after a crisis made by a more plentiful or more muddy emission of urine.

LXVI. Before the said menstrual crisis made soon after sleep, either there is felt a drowiness of the head, or weariness of the body, and afterwards, by a more plentiful evacuation of urine, all things are quieted.

LXVII. The external causes which ordinarily obstruct perspiration are a cold troubled, and moist, air ; swimming in cold water ; gross and viscous meats ; the intermission of corporeal exercise, or that of the mind, and, in robust persons, over much abstinence from venery.

LXVIII. External cold obstructs perspiration in a weak body, because its heat is dissipated ; but in a robust person, it augments it : for the heat is forced to the bottom, and re-duplicated, and thereupon nature is corroborated, and upon that the weight of the perspirable matter that is retained being by her consumed, the body becomes and is felt lighter.

LXIX. The health of that body is more firm and of longer continuance, whose weight, in the process of many years, is neither augmented nor diminished, than that of a body whose weight is altered every year.

LXX. For a body to be reduced to its usual ponderosity, by the accession of crude humours, is ill ; but if it be by the addition of such as are concocted, it is most wholesome.

LXXI. It is an ill sign, when a healthy person becomes of less weight than usual, it being supposed his course of life be the same as before, for there is not any refusal of that wholesome matter which had been lost.

LXXII. The concocted excrements of the belly are of great bulk, but little weight ; they swim on the surface, by reason of the air contained in them, and whatever
may

may be evacuated, at one and the same time, never exceeds the third part of a pound.

LXXIII. If it happen that in one day's space, through some miscarriage or other, there be so great a retention of perspiration as may amount to a pound, nature is commonly three days employed in the insensible expurgation of that which had been retained.

LXXIV. Then does nature make a great insensible evacuation, when she endeavours to void perspirable matter, retained by yawnings and extensions of the joints.

LXXV. The perspirable matter consists of two parts, to-wit, a light, and a ponderous.

LXXVI. The ponderous part is so exuberant that living creatures are generated of it, as punaizes, lice, and the like.

LXXVII. From the more ponderous part of perspiration do proceed the contagious infections of such as lie together: for the light part vanishes, but the more ponderous, being adhesive, does infect.

LXXVIII. They who in the scorching heats of summer are obstructed in the exhalation of the perspirable matter, are incommodated by heat; but to those who have an absolute freedom of perspiration the heat is not troublesome.

LXXIX. A greater weight differs from a lesser equal healthful, because the greater does the more accelerate old age. Be it supposed, that some person hath his health as well when he weighs two hundred weight, as at two hundred and five pound; we have observed that the excess of those five pounds did more accelerate old age.

LXXX. Why does animated flesh live, and not putrify, as a carcase does? because it is daily renewed. Why are children in a capacity of living longer than old men? because

because they may be more often renewed, since they begin from the lowest weight of the whole latitude, and so proceed to the highest : for they are capable of most of the healthful weights. Why is there a necessity that old men should die ? because they are capable only of the last proportions of weight. But why only of those ? because their fibres are hard, and, as such, cannot be any more renewed, whence death ensues.

LXXXI. Why are they cured who are surpris'd by some dangerous disease ? because they are capable of several sorts of healthy weights : for such diseases take away thirty pounds from men's bodies, more or less as the bodies are more or less replete, and as the disease is more or less hot, and according to its continuance.

APHORISMS ADDED BY THE AUTHOR.

LXXXII. OLD men prolong their lives by frequent spitings ; for these being retained within the body, as being incapable of coction or digestion, hinder perspiration ; the consequences whereof are suffocation and death.

LXXXIII. Old age is indeed a disease, but may last a long time, if the body be made easily perspirable.

LXXXIV. Venery, actual frigidity of the body, overplentiful drinking, supping as young men do, to be angry more than needs, and much exercise, all these shorten the lives of old men.

LXXXV. Old men reach not decrepid age by reason of the weakness of their expulsive faculties. Thence it comes to pass ; that when they drink more than it was requisite they should, they urine less, and perspire less,
than

than they are wont. The remedy is, that the subtraction be equivalent to the addition.

LXXXVI. Insensible perspiration being quite obstructed, does not only deprive the chiefest parts of life, but also one ignoble part. It deprives the chiefest, when there is an apoplexy in the brain, palpitation in the heart, an excess of blood in the liver, and a suffocation in the matrix; it deprives the ignoble part by gangrene.

LXXXVII. That women are troubled with the suffocation does not proceed from the womb's compressing the midriff, but from the frigidity of the corrupted seed, which does not want perspiration.

LXXXVIII. The humours of persons troubled with the gout, though they are most gross, are dissolved only by way of vapour.

LXXXIX. Vomiting diverts urine and perspiration.

XC. The frequent turning of the body in bed, since the doing of it requires the assistance of all the muscles, does weaken and obstruct concoction and perspiration. The remedy is, for one to be obstinately resolved to lie in one and the same posture.

XCI. While the knees are kept actually warm, the feet are not chilled; such persons sleep well, they perspire more, and urine less.

XCII. Looseness of the belly is taken away by those things which augment perspiration, of which kind bathing is one.

XCIII. As the loadstone is better preserved where there is much iron, and wine better kept in a great vessel than a little one, so such bodies as are more ponderous, yet healthy withal, do better preserve strength than such as abate in their weight, through want of aliment.

xciv. They who urine more than they drink, do perspire little, or nothing at all.

xcv. Why is there an obstruction of insensible perspiration in intermittent fevers? because the peccant humour is in the circumference of the body.

xcvi. In the dropsy, the water in the lower part of the belly is not dissolved, because its drought and hardness hinder perspiration.

xcvii. Hot humours being got together into any part are to be entertained with hot digestives, in order to their dissolution by insensible perspiration.

xcviii. Why is fainting or swooning beneficial in high fevers? because it causes sweating and a strong perspiration.

xcix. If the pricking of a nerve be closed up with milk, meal, or any such thing, the retained ichor becomes so sharp and corroding, that the patients die of convulsions, if the wound be not opened with oil.

c. Perspiration is beneficial in tumours, if it be procured by things actually and potentially moist; otherwise they turn to a scirrhus, by dissolving the tenuous humour, and leaving the gross.

ci. If any part of the body be full of blood, or some other humour, as it is observed in tumours, and in the pleurisy itself, it is not to be refrigerated; because, the matter being evacuated, it is refrigerated of itself.

cii. Hypochondriacal persons are recovered of their distemper, if their bodies be made perspirable by frequent bathings, and be kept to moist diet.

ciii. Insensible perspiration, procured by fomentations, in an unpurged body, attracts more humours than it dissolves, as appeared in Simon's case.

civ. Those bodies which insensibly perspire much, are neither purged nor blooded, as it is manifest in children.

CV. How come lice to be generated? because the perspiration of the malignant ichor, or thin matter, is obstructed.

CVI. A gangrene is prevented by those things that promote perspiration; by those that promote suppuration, it becomes a sphacelus, that is, when any part is mortified by inflammation.

CVII. Why does the part affected with a gangrene die? because the little arteries, by reason of the redundancy of blood, are not raised up. It is remedied by sensible and insensible perspiration.

CVIII. The most clammy humours in robust bodies make their way out through the narrowest passages, as it is manifest by the fææles voided by urine, as also by a mixture of water and honey injected into a wounded breast; and consequently they must make their way through the insensible passages.

CIX. By diffation, as well the beneficial, as the superfluous matter is evacuated; but if after sleep strength and vigour be acquired, the superfluous matter only is for the most part evacuated.

CX. That diffation which is not sensibly perceived, is natural, and is an argument of strength; but sweating argues the contrary.

CXI. If, in the winter time, any part of the body be very cold, the whole does so far sympathise with it, that the concoction and perspiration of the whole is thereby lessened.

CXII. Swimming is more safe towards the evening: in the morning the pores are stopped by the coldness of the water, whence there is some danger of a fever.

CXIII. If, in the summer time, the body lie uncovered, the perspiration is obstructed; whereupon ensue a drow-
siness

finess and heaviness of the head, and a bruised unweildiness of the body.

CXIV. If the weight of the body be augmented in the space of five or six days, it is not to be taken off of a sudden, but by degrees; for abstinence from food, if it be extraordinary, hurts the stomach, the brain, and the heart, and, after a while, the whole body.

CXV. In autumn, the weight of the body is augmented; which, if it exceed the standard of the healthy latitude, tertians, and other putrid fevers, are apt to be the consequences thereof.

CXVI. Things that are extreme cold in a violent fever, if they be not heated, prove mortal, by reason of the difficulty of transpiration

CXVII. Nothing is more hurtful to malignant ulcers, than those things that hinder perspiration, as fatness, oil, wax.

CXVIII. Of all the intermittent fevers, the quotidian only is not without danger; for flegm is one of the chiefest things that obstruct perspiration.

CXIX. If the perspiration be stopped in the neck, the sense of the pericranium is stupified, as may be observed in persons walking in the wind and rain.

CXX. Nothing is more apt to take away putrefaction, than for one to use much ventilation, not only that which is procured by what is drawn in, but also by what is evacuated through the insensible passages.

CXXI. Refrigerations in acute diseases are symptoms of death, as in Hermocrates for they take away perspiration.

CXXII. After bathing, the pores of the skin are condensed with oil, to the end, that the alimantal moisture

beim

being attracted may not be dissolved. In dangerous cases therefore, use oil to close and not to open the pores.

CXXIII. And yet that course of diet, which we least regard, brings us to an old age great as that of Philip.

CXXIV. The diaphragma, or midriff, by contracting itself to its principle, dilates the breast; by that dilatation is inspiration wrought. And by dilating itself, it contracts the breast, and by that contraction expiration is wrought.

CXXV. But the spincter, or the muscle that shuts the bladder, by contracting itself to its principle, closes the bladder, and keeps in the urine; by spreading itself, it dilates the bladder, and emits the urine.

OF THE PESTILENCE.

CXXVI. THINGS infected with the plague communicate the infection as long as the next and remote causes remain; but any one of those failing, the poison ceases, like the motion of a clock, when, upon the breaking of a tooth in any one wheel, it is at a stand.

CXXVII. We are not infected with the plague by contact, but by drawing in the pestiferous air, or the vapours arising from infected goods. It happens thus: the vital spirit is infected by the air, by such infection of the spirit the blood is congealed, which last being forced outwards raises carbuncles, black spots, and buboes: if it remain within, it causes death; if it be quite expelled, we are past all danger.

CXXVIII. If the whole infection be forced out into carbuncles and buboes, it is a good sign; if not it is mortal.

CXXIX. We are not of ourselves infected with the plague, but it is brought to us by others. This is manifest

fest by the experiment of such as are shut up in nurseries.

CXXX. Not all, but much about the third part, of mankind dies of the pestilence. That it is so, may be seen by the experiment of those whose office it is to view the dead.

CXXXI. They who conceive the blackness of the spots to be a sign of adustion, are mistaken; for many times aged men, being internally and externally cold, without any fever, depart this life in two days time, with the same blackness, but proceeding from a thrombus, or clots of blood.

CXXXII. If a small quantity of blood, by reason of the vital spirit's being infected, becomes a clot of blood, and this last be wholly thrust out by buboes and carbuncles; they are cured; if it be not wholly forced out, they die; as in the black spots.

CXXXIII. Consequent to this is it, that they, who have their ulcers and buboes opened, if the internal infection be wholly come out, recover; if not, they die.

CXXXIV. There are two ways to put a stop to the plague; to-wit, that the sound be separated, and that the infected may have place enough to air themselves. There are two ways to do the latter; to-wit, that they be not sent to places they abhor to come into; and that their household stuff be not burnt.

CXXXV. They whose lungs are thin, are easily infected with the plague; the contrary is to be affirmed of those whose lungs are thick. It argues the thinness of the lungs, when any one drawing in his breath as much as he can, that single stroke of the pulse is somewhat weaker, or more gentle.

CXXXVI.

CXXXVI. The plague is not to be compared to fire, which increases upon the addition of fuel; but the former decreases, though the fuel of it remain in the same posture.

CXXXVII. The rays of the plague are removed from one place to another by the wind; but not by any violence of a lucid body.

CXXXVIII. They who prescribe any other remedy for the shunning of the plague, besides that of flying from it, are either ignorant men, or cheating quacks.

CXXXIX. Hence it comes to pass, that of persons of quality none almost are cured by remedies; but very many of the meaner sort of people without them.

CXL. Why does the plague continue long? Because, while it rages, they air things that are infected, which, while they are cleaning, thieves steal and scatter up and down; after the plague is at a stand, they do not infect, otherwise the plague would be perpetual.

Because some among the infected persons, when they are forced out of the city, do not air themselves as they should do, by which means the infection increases.

Because they do not prohibit the people's assembling in churches. Divine service at such times should be performed in the open air.

Because men make use of surgeons that are strangers, or foreigners, who are the better pleased the greater the plague is.

Because they do not separate the sound into other houses from the infected.

Because they use internal remedies against the plague, when none can be administered but what are hurtful.

Because they admit poultry to be brought to the market, which the sound coming to handle, after they had

been handled by the infected, are afterwards thereby infected.

OF AIR AND WATERS.

Section II.

I. A COLD air and cold bathings put strong bodies into a heat, and, by taking away what is superfluous, make them lighter; but they refrigerate weak bodies, and, by mastering the heat, make them more ponderous.

II. Warm air and baths actually warm, if crudities do not obstruct, do also promote perspiration, refresh the inward parts, and render men's bodies lighter.

III. An external air, penetrating into the innermost parts of the body, through the trunks of the arteries, may make the body more or less ponderous; less, if it be subtle, and warm; more, if it be thick, and moist.

IV. How great the ponderousness of the air is, may, in the *first* place, be gathered from the greater or lesser weight of the dregs of alum dried before in the sun, and afterwards exposed to the air in the night time. *Secondly*, from our feeling a greater cold than what is observable in the weather-glass, for the moisture or ponderousness of the air is to us the measure of its coldness. *Thirdly*, from the greater or lesser bending of a very thin board, especially if it be of pear tree. *Fourthly*, from the contraction of the strings of a lute, or from hemp.

V. How great the ponderousness of water is, may easily be understood, if some heavy thing be supposed appendant in the water. For that water is lighter, and consequently the
more

more wholesome, wherein the heavy thing does the more gravitate; but that wherein it does less gravitate, is the more ponderous and the more unwholesome.

VI. That water which is more heavy, and the air that is more muddy, and more ponderous, convert the invisible perspiration into an ichor (or thin matter) which being pent in, and afterwards not dissolved, does for the most part cause a cachexy, or evil disposition of the body.

VII. In a cold healthful air perspiration is also obstructed, the pores are condensed, but the fibres are corroborated, and the weight of that perspirable matter which is retained neither hurts nor is felt.

VIII. In a thick foggy air perspiration is obstructed, the passages are filled, but not condensed, the fibres are loosened, not strengthened, and the weight of the perspirable matter unevacuated hurts, and is felt.

IX. If cold weather succeed a warm air, such as that in summer time, it shall, that day (it being supposed that a man takes the same liberty of drinking), hinder about a third part of the perspiration, which if it be not made sensible, is apt to dispose the body to putrefaction, or some evil habit.

X. The hindrance of perspiration, occasioned by unexpected cold, is more hurtful to weak bodies than that which is hindered by degrees.

XI. He who is surpris'd unclothed at such time as a cool air succeeds a precedent heat, is wont to perspire less by about two pounds in one day's space, yet without any sensible inconvenience to him.

XII. A pleasant and somewhat cool breeze is more prejudicial to bodies well warmed, than the cold of air and water in an excessive degree: for the former does not render the body lighter, but obstructs and loosens it; but the latter

ter obstructs and corroborates it, and thence it comes that the bodies are less ponderous.

XIII. When the unwholesome qualities of the air and water dispose bodies to a malignant putrefaction, their weight for the most part is but little heeded; as if this should be the reason of it, that by their corruption the nerves become stronger, as it is observed in distracted persons.

XIV. To swim in cold water after violent exercise is extremely pleasant, but mortal: for there is nothing more pernicious than opposite motions.

XV. That which treacherously disposes the entrails to indispotion, does not many times seem to be either heavy or unpleasant.

XVI. A pleasant gale of wind from the south surprizing a man at a violent exercise, is many times mortal; for the gale occasions a difficulty of breathing, and from the exercise proceeds acrimony.

XVII. It happens to those who, after supper, are desirous of having a cooler gale of wind than is requisite, that the perspiration of that part which is not well clothed is obstructed; but that night or the next day, most of them are subject to a great aching of the head.

XVIII. If bodies be suddenly shifted out of a warm air into a cool, they are injured; because they are rendered of greater weight than is requisite. If removed out of a cold air into a warm, they are also endamaged, because they become less strong.

XIX. Persons of weak constitutions make a greater conversion of the perspirable matter retained into urine, in the winter time; robust persons do the same in the summer.

XX. Fanning obstructs perspiration, and makes the head more ponderous, and more hot.

XXI. The wind, as it is colder than the skin, so is it ever obstructive and hurtful to it, but more than any part to the head, because it is most exposed.

XXII. In all seasons of the year generally dry weather is more healthy than continual rains, for it renders men's bodies lighter.

XXIII. In the summer time, temperate bodies are less ponderous than they are in winter, by about three pounds.

XXIV. In the summer time men are subject to weariness, not because the body is more ponderous, but because it is less strong.

XXV. In a warm air, the body is of less strength, as well by reason that with the perspiration there is somewhat of the better spirits exhaled, as because the warmth is not concentrated.

XXVI. There is always by a warm air somewhat dispersed through the whole skin, which carries away with it somewhat of the internal good humour.

XXVII. In the summer time we are troubled with heat, not principally proceeding from the warmth of the air, for every part of the body is warmer than the summer air, but because there is not so much coldness in the summer air, as that the natural heat may be sufficiently concentrated. Whence it comes to pass, that, being so diffused, it cannot insensibly evacuate that perspirable matter which is of its own nature hot; which matter being kept in becomes sharp, and is the cause of our being troubled with much heat.

XXVIII. When men's bodies, in the hottest seasons, upon sleeping in the night or day time, perspire abundantly, or sweat, they become lighter, and are not that day troubled with any heat.

XXIX. If a cold air immediately succeed the summer heat,

there will be occasioned, for the most part, that day, the retention of about a pound of the insensible excrements.

xxx. If the summer prove like the spring, so as that men's bodies may be reduced to the weight answerable to the summer, it must be the effect of sweating.

xxxI. At the beginning of summer, if intense heat come of a sudden, weariness and faintness ensue, which do not continue long though the sultriness be increased for some days after, because the weight of the perspirable body is abated.

xxxII. The same vigour is not so much concerned in struggling with a lesser, as it is with a greater, weight of the body.

xxxIII. Perspiration, procured by the force of warm air or water, is hurtful, unless the malignancy of it be not balanced by some greater benefit.

xxxIV. Robust bodies perspire more in the summer time by day, in the winter by night.

xxxv. That impediment of respiration which in the summer time is apt to be introductory to a malignant fever, does hardly in the winter time cause the least alteration; for, in the summer, men's bodies are filled with a perspirable matter of a sharper nature than they are in winter.

xxxvi. To sleep in the summer time with the body uncovered, or abroad in the open air, does for the most part dispose it to putrefaction, by hindering the perspiration.

xxxvii. The difficulty of respiration does not heat the entrails, unless the perspirable matter become sharp by reason of its retention, or upon the account of external heat, or violent motion.

xxxviii. In the summer-time when cold does of a sudden succeed heat, the inconvenience of excessive venery is hardly

hardly perceived : but if the air re-assume its former warmth, men are very sensible of the injury they have received by the precedent miscarriage.

XXXIX. The injury men receive by the not immoderate exercise of venery is commonly balanced by an equal benefit, if the heat be concentrated by the cool air.

XL. In the summer nights men's bodies are most disposed to fevers, by reason of the vicissitude of the air, for at the beginning of the night, the air is inflamed, but about midnight it is more temperate, and in the morning cool; whence it comes to pass, that the usual perspirable matter is not evacuated in such as sleep with the bed-clothes off, and their bodies are more ponderous; which happens not in winter.

XLI. From the autumnal equinox to the winter solstice, we perspire every day much about a pound: from thence to the spring equinox we begin to perspire more freely.

XLII. Autumn is an unhealthy season, as well by reason that the perspiration is obstructed by the cold then coming in, as for that what is not perspired becomes sharp and corroding.

XLIII. Autumnal indispositions are avoided, if the body be not of greater weight in autumn than it had been in summer.

XLIV. That weight which is augmented by degrees is to be abated by degrees.

XLV. The more than usual weight of the body is not to be taken off in the spring, but in autumn; for the cold air then coming in is a greater enemy to the weight.

XLVI. Thou wilt not be troubled with any disease in autumn, if the cold weather then coming in find thee well furnished with clothes, if thou use diuretics, and wilt be kept in the same weight as before.

XLVII. He who is well clothed perspires the better for it, and is rendered of less weight.

XLVIII. They who in the winter time are commonly troubled with diseases proceeding from the abundance of humours, are to be purged in autumn, and not in the spring, and ought to be reduced to the weight they were of at the beginning of summer.

XLIX. But if the diseases proceed from some malignant quality, the bodies are to be purged in the spring, and not in autumn; for the malignancy of the quality is more augmented in summer than in winter.

L. They who at the beginning of the spring divest themselves too soon, and in autumn are backward in putting on their winter garments, are, in summer, apt to fall into fevers, and in winter to be troubled with distillations.

LI. The retention of the perspirable matter, as it has a sharp quality, causes fevers, and erysipelases; as to its redundancy, it causes apostems, distillations, or an evil habit of the body.

LII. External cold, by concentrating the heat, makes nature so much the stronger, by how much it is the more able to bear about two pounds of perspirable matter unevacuated over and above its ordinary weight.

LIII. At the beginning of winter, men's bodies are easily reduced to their usual weight; but in the beginning of summer it is with much ado that they are reduced to the summer weight.

LIV. There would be an uninterrupted healthfulness, even to the extremity of age, if men's bodies were kept in an equal weight during the four seasons of the year.

LV. Those bodies whose weights are much augmented and diminished in the space of a year, are in great danger.

LVI.

LVI. The greater variety there is of the weight of any body in the space of a year, and the greater the augmentation or diminution of the blood is, so much the worse is the condition of that body.

LVII. The augmentation of the weight happens at the beginning of autumn, the diminution at the beginning of summer.

LVIII. Those bodies whose weight is augmented, are in a more dangerous condition than those whose weight is diminished.

APHORISMS ADDED BY THE AUTHOR.

LIX. **T**HOSE parts of the body which are covered do healthfully perspire ; but if they be found uncovered after sleep, their pores are condensed by even the warmest air.

LX. That air which is over cool, moist, or windy, obstructs perspiration : whence it happens, that such as keep within doors, as, for example, women, are not troubled with coughs, catarrhs, or inflammations of the lungs.

LXI. The city air is worse than that of the country ; because it is more thick, and, not rarified by the wind, takes away the appetite.

OF MEAT AND DRINK.

Section III.

I. **I**F the stomach, filled with meat, does, while the body sleeps, complete the first concoction, the perspiration of that
night

night does commonly amount to forty ounces; if it does not complete it, it comes to but about eighteen.

II. If the stomach be quite empty and fasting, though the party sleep, he does not perspire above eighteen ounces.

III. A full body that does not concoct, perspires much about the same rate as one in a manner fasting, that has not any thing to concoct.

IV. Meats that are very nourishing, mutton only excepted, from supper over night to dinner the next day, do not usually perspire above eighteen ounces.

V. Many who feed plentifully on meats of little nourishment, may, in the space of one night, perspire above forty ounces.

VI. Those aliments which continue bodies in their usual weight are either those of very much nourishment, or such as cause obstinate crudities.

VII. Those which continue them in their usual lightness are such as they are accustomed to, and easily evaporated.

VIII. Mutton is easily concocted, and vaporous; for in a night's space it perspires one third part of a pound more than other meats, and such as a man is accustomed to.

IX. The meats which are made of leavened paste do not make bodies more ponderous, for they perspire more easily than turnips.

X. A healthy person does insensibly exhale as much in the space of one day as he does by stool in a fortnight; nay, though he once every day evacuate the concocted and consistent faeces.

XI. The full stomach, and the empty, diminish the perspiration;

spiration; the full stomach diverts it, by the corruption of meats; the empty attracts it, that it may be filled.

xii. When the full stomach does not complete, the concoction is discovered by the weight; for then the body perspires less; but the empty stomach is filled with wind.

xiii. Windiness is nothing else but an imperfect kind of perspirable matter.

xiv. The robust person consumes his plentiful feeding by insensible perspiration; one less robust, by urine; a weak person, for the most part, by the corruption of the chyle.

xv. When a man forbears supping, the stomach being empty, and no paroxysm pressing upon a man, there is a retention of the perspirable matter, and that being retained, becomes sharp, and thereupon the body is prepared for hot distempers.

xvi. That abstinence from meat which reduces men's bodies to a lesser weight, but withal such as is unusual to them is hurtful.

xvii. Why are there some that die of hunger, if there be never any defect of blood in the living creature? Because the blood, making to the empty part of the belly, forsakes the heart.

xviii. Undigested meat, not only as to its quantity, but also as to its quality, makes the body more pondetous, inasmuch as it hinders perspiration.

xix. When any one seems to himself lighter than he is, and yet is not so, it is a very good sign; for this proceeds from the juices of the three concoctions exactly digested.

xx. When there is a lightness and agility of the body felt for a whole day together, it argues there preceded a concoction

concoction of the chyle and blood, and that the dregs, as it were, of the third concoction are almost evacuated.

XXI. Undigested meat, the more full of nourishment it is, is so much the worse, either because it causes a greater weight or a worse corruption.

XXII. The body is rendered most light by the corruption of meat; for all the liquid excrements are of great weight.

XXIII. The use of swine's flesh and mushrooms is hurtful, as well because these do not perspire, as because they suffer not other meats eaten with them to perspire.

XXIV. Upon the eating of swine's flesh and mushrooms the body commonly perspires less than it is wont by a third part of a pound.

XXV. Melons perspire so little, that they abate about a fourth part of the usual perspiration.

XXVI. That retention of the perspiration caused by melons is evacuated by urine or sweating.

XXVII. Grapes and green figs perspire but little, and somewhat hinder the perspiration of other meats; haply because they are sensibly evacuated.

XXVIII. That kind of food does perspire best of all, and conveniently nourishes, whose weight is not felt in the belly.

XXIX. Plentiful feeding is more hurtful in a sedentary and idle person, than in one that is employed; for the entrails are made heavy by rest, but are eased of their weight by exercise.

XXX. The body perspires best after that meat whose faeces are emitted in a certain consistency.

XXXI. Chicken's flesh shall be of less nourishment than a lettuce, if a man eat so plentifully thereof as that it cannot

not be evacuated otherwise than by the way of liquid faeces.

xxxii. By ponderation you will find out when fasting conduces to your health, and when it does not: it will be healthful, if there be any thing of the precedent day's refection left to be perspired, if there be not, it will be unhealthful.

xxxiii. When the body is reduced by diet to a weight below the lesser standard of its healthy weight; what it loses of its strength is irrecoverable. But that there is a lesser and greater weight in reference to health, you will find by the 64th aphorism of the first section, and by the 60th of this third.

xxxiv. If thou canst but find out every day what quantity of meat is convenient for thee, thou wilt know how to preserve thy vigour and life a long time, and that thou wilt discover by the same aphorism.

xxxv. The strength of nature is not a little impaired, when a man's supper amounts sometimes to four pound, sometimes to six.

xxxvi. That is the most healthful proportion of meat, when after eating the body performs whatever it has to do with the same agility, as if it were fasting.

xxxvii. The body also is much more burthened by eight pounds of meat eaten in a day at one meal, than by ten pounds taken in the same space of time at three several meals.

xxxviii. That quantity of meat is the most wholesome for every man, which may without any trouble be overcome by the concoctive faculty; and that is done, if so much be consumed as is received into the body; for these things will be discovered by ponderation.

xxxix.

xxxix. That quantity of meat is to be received into the body which nature is able to concoct, digest, and perspire.

xl. If nature could digest a hundred pound weight of meat, and there be given but ninety-nine pounds, the animal would upon that account be destroyed in process of time.

xli. Then will meats of good nutriment and juice promise thee a long continuance of health, when the quantity of perspiration is in the mean, between excess and defect: the excess, after a plentiful supper of meats of easy perspiration commonly amounts, in the space of one night, to forty ounces or thereabouts, the defect but to fourteen. That proportion therefore of meat, which will bring thee to two-and-twenty ounces, which is the mean between the other two, will promise thee infallible health and long life.

xlii. The opinion of Celsus is not safe for all persons, to-wit, that in the use of the six not natural things, men ought sometimes to be sparing, and sometimes to exceed.

xliii. Bodies are with less trouble reduced to their usual weight, if men take four pounds of meat at dinner, and four at supper, observing a convenient interval, than if they take six at dinner and two at supper.

xliv. That person destroys himself by degrees, who eats once a-day besides his ordinary meals, whether he eat little or much.

xlv. The body is made more ponderous by four ounces of meat that is of much nutriment, such as pork, eels, and all fat things, than by six ounces of meat that is of little nourishment, such as are small fishes, chickens, small birds, and the like.

xlvi. If there be any difficulty in the concoction of meat which is of little nourishment, it will happen only in the

the first concoction ; but if there be a difficulty in the concoction of meat of much nutriment, it will happen in all the concoctions.

XLVII. Meat of little nutriment moistens and loosens the belly, is soon digested, and readily promotes the perspiration of men whether sleeping or waking.

XLVIII. Meat of much nutriment binds the belly, if it be not corrupted, is of difficult concoction, and perspires little.

XLIX. Where there is a difficulty of concoction, there is but a slow perspiration.

L. Not that meat which is fluid, but that which is of better juice ought to be eaten first, for the pylorus or stomach-gut, is not at the bottom, in men, as it is in dogs.

LI. Three inconveniences are consequent to men's feeding on variety of meats; there is an excess of eating, the concoction is less, and the perspiration less.

LII. The time of least perspiration is, when the stomach is full, especially with variety of meats.

LIII. They who vomit up their supper do immediately remove the pain of their stomach, but the next morning they feel their bodies more ponderous : for vomiting diverts perspiration, by attracting the perspirable matter to the inward parts ; which matter, upon the score of its being sharp causes lassitude and heat, upon that of its redundancy, it causes heaviness.

LIV. That person, who eats more than is requisite; is nourished less than is requisite.

LV. They who in their youth are immoderate in their diet, make the stomach larger than it should be, whence it comes to pass, that it proves a hard matter to reduce them afterwards to a moderate diet.

LVI. If any one be desirous to be reduced to a moderate diet, let him use food of little nutriment, and so the stomach soon disburthening itself of it, will be contracted, and reduced to a less capacity.

LVII. You will find what quantity of meat you should eat, if for several days together you observe that the body after sleep is without any trouble reduced to the same weight.

LVIII. If after a plentiful supper the body be of less weight the next day, it happens either by reason of the corruption of the meat, or because nature is stirred up to expel that which is beneficial, which is extremely hurtful: for the body is prepared for diseases when those things which are beneficial are evacuated, and crudities kept within the body.

LIX. If a man's supper amount to eight pounds, and what he has eaten be corrupted in the stomach, the next day the body will be of less weight, than if the supper had been of three pounds, and the meat had not been corrupted.

LX. Those meats that are most conducive to perspiration are not corrupted; nay, after watching whole nights, they keep a man from weariness and heaviness.

LXI. Meats not apt to perspire are wont to cause obstructions, corruptions, lassitude, pensiveness, and pendorosity.

LXII. Then is a living creature in the worst condition, when after the concoction is completed, the body seems to be more burthensome than ordinary, while yet it is of less weight.

LXIII. If any one has been excessive in eating or drinking, and there ensue thereupon such sensible evacuations as are

are greater than usual; the body is; next day, lighter than usual.

LXIV. Liquid meats, supposing an equality as to quantity, are more ponderous than the solid; the liquids go to the bottom, the solid keep on the top: a cup of wine, or mels of broth, is of more weight than a whole loaf.

LXV. If excess in drinking make the eyes, as it were, full of tears, it is a sign the body has not perspired as much as it should have done.

LXVI. If after much drinking you sweat or urine much, it is an argument of either great strength or great weakness.

LXVII. The drinking of cold water obstructs insensible perspiration, but augments the sensible.

LXVIII. In these our days, drinking, even in temperate persons, is disproportionate: for men eat commonly after the rate of twelve ounces, but drink after that of forty, and above.

LXIX. In a man of moderate diet, the nocturnal perspiration sometimes amounts to three pound; in a person who feeds plentifully, the stomach being empty before, and strong, it may amount to five pounds.

LXX. If a body be in its standard of greater weight, fasting is beneficial to it, if in its mean, it is hurtful, if in its lesser weight; it is much more hurtful.

LXXI. If after long fasting the body be plentifully fed, the perspiration amounts to a pound more than it usually does.

LXXII. To eat immediately after immoderate exercise of body or mind is hurtful; for the wearied body perspires with some difficulty.

LXXIII. When sober persons, and such as are moderate in their diet, die betimes, their friends wonder at the strange-

ness of it, because they know nothing of insensible perspiration.

LXXIV. Excess of meat and drink does not only keep the acrimony of the perspirable matter which is retained lurking in the body, but also the depraved affections of the parts, especially of those that are not the principal, and that for a long time ; which affections, when the bodies are purged, or brought low by much fasting, break forth of a sudden, and turn into violent distempers.

LXXV. That physician who is to regulate the diet of princes, if he be ignorant how much, and when, they daily perspire, deludes and does not cure them, and if he do them any good, it is by chance.

LXXVI. For about the space of four hours after meat most people do hardly perspire a pound, thence to the ninth hour two pound, from the ninth to the sixteenth hardly a pound.

LXXVII. Then is it the proper time to take refection, when the body shall be reduced to that weight, yet healthful, which it was of a little before the party had eaten the day before. And this only Apollo himself shall find out without the balance.

LXXVIII. But if the unusual weight of the over-night's drinking be not taken off, either by the strength of the concoctive faculty, or by corruption the next day, take the advice of these two verses.

*Si nocturna tibi noceat potatio vini,
Hoc tu manè bibas iterum, & fuerit medicina.*

*If over night thou tak'st a dose,
And find'st thyself amiss,
Thou must next morn another take:
No remedy like this.*

LXXIX.

LXXX. If the healthful weight of the body, after supper, amount to two hundred pound weight, the body being rendered less healthful by immoderate venery shall weigh about a hundred ninety-eight pounds, because that remission of vigour is the hindrance why two pounds of the aliments cannot, at least without some trouble or anguish, be converted into the healthful weight.

LXXX. Meat of easy perspiration does more easily, and with much less trouble, recruit the wasted strength of those who use venery, than does that of difficult perspiration, or of much nutriment.

LXXXI. New wine, though somewhat muddy, if it be concocted in the stomach, does not only perspire itself, but very much promotes the perspiration of other meats. This quality also have those hot things that are flatulent.

LXXXII. Onions, garlic, mutton, pheasants, but above all, the cyrenaic juice, promote the perspiration of meats not easily perspirable,

APHORISMS ADDED BY THE AUTHOR.

LXXXIII. A VERY small quantity of food is not embraced by the stomach. Thence comes it, that it is not concocted, it does not nourish, it does not perspire.

LXXXIV. Insensible perspiration is an excrement of the third concoction; if therefore the first concoction be not performed neither will the third.

LXXXV. If that quantity of food which amounts to about four pound be hurtful, taken all at once in a day, the same quantity, divided into two or three meals, may

be healthful : the repletion of the belly diverts insensible evacuation.

LXXXVI. The inconveniences attending extraordinary fasting are these, the head is filled with humours, the temples beat, the hypochondries are dilated, and a weariness of the arms and thighs.

LXXXVII. That emptiness of the stomach which is occasioned by the scantiness of meat is greater than that which is occasioned by physic ; which latter does indeed excite sensible evacuation, but diverts the insensible.

LXXXVIII. In flegmatic constitutions, if the stomach be empty in the morning, by reason of their not having supped the night before, dry food is very beneficial, such as biscuit.

LXXXIX. No man will fall into any disease, if he carefully provide that he be not troubled with crudities.

XC. It is safer for aged persons to take their refection thrice in a day, as Antiochus did, than twice, or to eat much at once ; for it much obstructs perspiration.

XCI. Why did not Antiochus eat fish at supper ? Because they hinder perspiration : after sleep perspiration is very good, which not performed, there is a remission of strength and vigour.

XCII. The coldness and clamminess of the juice of cucumbers is kept in the veins, nay, other unwholesome juices, though of easy concoction, by obstructing the perspiration, cause malignant fevers.

XCIII. Why does the corruption of meat cause weariness ? Because it diverts perspiration. But how ? Because it causes the coeliac disease. But why does the coeliac disease cause weariness ? Because there comes out along with the excrements somewhat of the former well concocted meat.

xiv. If any ones goes with a tired body to supper, or to wash himself, there ensues, immediately after sleep, a certain chillness over the body, and weariness; yet about twelve hours after supper all is well again; because then the concoction and perspiration is good.

xv. Meat after violent exercise is hurtful, as well by reason it is not embraced, as that it diverts perspiration.

xvi. He who goes to supper with a disturbed mind, digests much less than another, who is undisturbed and cheerful.

xvii. Drinking between dinner and supper is hurtful: but if we drink so much the less at supper the hurtfulness is taken off.

xviii. Vomiting after supper weakens a man, not only upon this score, that it voids the aliment, but also because it diverts perspiration.

xix. If a man exceed in meat and drink once or twice in a month, though he does not sensibly evacuate the next day, yet he weighs less than usual.

c. He who confines himself to a regular diet, wants the conveniences of those persons who exceed once or twice a-month: for the expulsive faculty being stirred up by redundancy excites so great a perspiration, as without statics nobody would believe.

ci. In a cold body honey is good, because it nourishes and perspires; in a hot it is hurtful, because it turns into choler.

cii. Nothing more obstructs perspiration, than for a man to drink while the chyle is preparing.

ciii. The liver does not attract the chyle, by reason of its coolness, much less does it expel the perspirable matter.

civ. In a healthy man, if the belly be loose, it either happens through some defect in the concoction, or the distribution of the chyle, by reason of the obstruction of perspiration.

cv. There are two things extremely prejudicial to good health, viz. to give up the body wholly to a slothful repose, and to eat before the concoction of what had been eaten before.

OF SLEEP AND VIGILANCE.

Section IV.

i. **UNDISTURBED** sleep is so great a promoter of perspiration, that, in the space of seven hours, fifty ounces of the concocted perspirable matter do commonly exhale out of strong bodies.

ii. A man sleeping the space of seven hours is wont, insensibly, healthfully, and without any violence, to perspire twice as much as one awake.

iii. That perspiration of a sleeping person which is attended with much sweating, is not more plentiful than any kind of insensible perspiration without sweating.

iv. After a good night's rest the body is felt of less weight, as well by reason of the augmentation of strength as by that of the exhalation of at the least about three pounds of excrements.

v. Disturbed sleep does commonly obstruct one third part of a pound of the usual perspiration.

vi. In undisturbed rest, the perspiration is sometimes greater, allowing the same proportion of time, than in violent exercise.

VII. In the morning sleep, but after the completing of the first concoction, a pound of the perspirable excrements do commonly exhale in the space of one hour, but if it be not completed, there is not a fourth part exhaled.

VIII. Those things which hinder sleeping do also obstruct the perspiration of the concocted perspirable matter.

IX. Short sleeping proceeds from the acrimony of the perspirable matter, which is not evacuated; but the retention of the perspirable matter is commonly occasioned by nature's being more than usually employed about some other internal functions.

X. The acrimony of the perspirable matter which is retained, very often ascends up to the head, disturbs sleep, and diverts the perspiration of the superior parts.

XI. If any one, after sleep, feels a kind of pain in his arms, or imagines them more than usually wearied, it is an argument that the body is of greater weight than nature can long endure.

XII. They who sleep with their feet and legs uncovered, are deprived of as much perspiration as may amount to a pound in the space of one night.

XIII. A continual agitation of the body in bed is more disturbant than swift running; for in the motion of a person running, the muscles only of the inferior parts are moved, in that of a person lying along, the muscles of the whole body in a manner are in motion.

XIV. Perspiration is more obstructed in persons sleeping by a cool southerly gale of wind, than it is in persons awake by a great cold.

XV. If the night's rest be less than usual, there is a diminution in the exhalation of the concocted perspirable matter, but the perspiration of crudities is augmented.

xvi. After meats of easy perspiration men's bodies are rendered rather weak than weighty; but after those of difficult perspiration they become both weak and weighty.

xvii. The perspiration occasioned by sleep differs in species from that which comes by vigilance; the former implies the evacuation of concocted perspirables without acrimony, and with a recruiting of the strength; the latter, that of crudities, and is sharp, violent, and with some difficulty.

xviii. A person sleeping perspires twice as much as one waking. Thence came that remarkable saying, two hours of rest in a person awake are but equivalent to one of sleep.

xix. I have found, by experience, that in the space of seven hours the insensible perspiration in a person sleeping, as to many, amounted to about forty ounces; in one awake but to twenty.

xx. He who goes to bed with an empty stomach perspires that night about a third part less than he is wont to do.

xxi. Persons of a choleric constitution, who go to bed with a stomach quite empty, have these inconveniences; the belly and head are filled with crudities, their temples beat, their flesh wastes away, they are troubled with vehement stretchings about the arms and hands, sometimes a heart-burning, or corrosion of the mouth of the stomach, vertigoes and epilepsies; as it happened to Diodorus.

xxii. After a perspiration greater than we are wont to have, a more plentiful supper promises a longer and foundier sleep.

xxiii.

xxiii. A less than the usual perspiration is the foreteller of disturbed sleep, and a troublesome night.

xxiv. If, after a short and unquiet sleep, the flesh be found cold, and that thereupon a feverish fit succeeds, in weak persons it commonly prefigures death, in strong a long continuance of sickness.

xxv. By change of lodging sleep is disturbed, and the perspiration is less. For unwonted things, though better, are prejudicial to body and mind.

xxvi. Men dream more in a bed they are not accustomed to than in that they constantly lie in.

xxvii. They who sleep and do not dream perspire well, and so on the contrary.

xxviii. Sleep about four hours after meat is best; for then nature is least employed about the first concoction, it better recruits what was lost, and more promotes perspiration.

xxix. If about five hours after supper you weigh a person just awaked out of his sleep you will find that he hardly perspired a pound; if it be done eight hours after sleep, you will find that he has perspired three pound.

xxx. If a man's sleep be shorter than it is wont to be, there is somewhat of the perspiration obstructed, which if it be not repaired in the subsequent days by a more plentiful perspiration, there is some danger of a fever.

xxxi. If there be a retention of any part of the usual perspiration, the next day, or after dinner, we are overcome with sleep, and in an hour's space perspire about a pound: or the night following, our sleep is so much the longer, the more expedient it was that we should perspire more than usually; otherwise we fall into a sensible crisis, or into a disease.

xxxii.

xxxii. Oscitation, and the stretching of the joints after sleep denote that the body has perspired very well, as it is related of cocks, smiting themselves with their wings before they crow.

xxxiii. The oscitations and extensions of the joints and limbs, which happen immediately after sleep, are raised out of the plenty of perspirables excellently well prepared for evacuation.

xxxiv. Men's bodies perspire more in half an hour's space, by yawning, gaping, and stretching out of the body, than in three hours of any other time.

xxxv. They who administer syrups, or other medicines, to sick persons during the time of their best perspiration, which is commonly for the space of two hours after sleep, injure them; but in the subsequent hours they do them good.

xxxvi. In paroxysms, or any great fits of sickness, gaping and stretching of the body signify the concentration of the heat, but the evacuation of a great quantity of acrimonious perspirable matter that had been retained.

xxxvii. In an hour's sleep at noon, after meat, men's bodies commonly evacuate sometimes a pound, sometimes half a pound, of excrements insensibly perspirable; a pound, if there be ought retained of the precedent day's perspiration; half a pound, if nothing.

xxxviii. If ought of the precedent day's perspiration be retained, and that it be not evacuated by sleeping at noon, immediately after sleep there is felt a great heaviness of the head, and a very afflictive pain.

xxxix. If within four hours after sleep the meat a man has eaten be corrupted, immediately these two inconveniences mutually consequent one to the other will follow, to-wit, an obstruction of perspiration, and watching.

XL. There is no cause does more frequently interrupt sleep than the corruption of a man's meat. This is caused by the sympathy there is between the stomach and the brain.

XLX. Sleep is better in winter than in summer, not because men's bellies are hotter, or their sleep longer, but because before day-light their bodies are actually hotter, and as such are apt to perspire very much, whereas in summer they are more cold.

XLXII. Parity of discourse, and agility of body after sleep, are indications that the body has perspired that night commonly at least three pounds.

XLXIII. Lightness of the head after sleep at noon denotes that there had not been any thing retained of the precedent day's perspiration.

XLXIV. Sleep moistens all the external and internal parts, because it attenuates the perspirable matter, and being so attenuated it disperses it into all the members.

XLXV. Vigilance stirs from the centre to the circumference that blood which is less prepared for perspiration than it is in such as are asleep.

XLXVI. By sleep the humours are concentrated, the insistent heat is united to the innate, thirst is taken away, unless choler be predominant, there is a conversion made of the blood into the second moistures, and the bodies become lighter.

XLXVII. By sleep the animal spirits languish; by vigilance the vital and natural spirits languish.

XLXVIII. By vigilance the animal spirits are corroborated, but the vital and natural languish.

XLXIX. By sleep the internal parts are more heated, and are also made more light. By vigilance the external parts are made more hot, and also more light.

L. By too much sleep the internal and external parts grow cold, the humours are forcibly crowded in, and made imperpirable, and the bodies are rendered more ponderous.

LI. Choleric bodies are extremely prejudiced by excessive sleeping, not because the excrements of the third concoction are made imperpirable, but because they become extreme sharp, and are afterwards noxious to the head and other entrails.

LII. In persons sleeping with the bed-clothes cast off, perspiration is more obstructed than it is in persons awake, who have no clothes on; as well by reason of the quiet posture of such as are asleep, as also for that the heat of the external parts retreats inward.

LIII. A more than usual watching renders men's bodies, during the first subsequent days after it, more ponderous, and more weak. They are more ponderous, because, after the evacuation of the perspirable excrements, there is left behind a certain juice, which, of itself, is crude, and, by accident, ponderous; they are weaker, because where there is any crudity, there is no conversion made, and consequently the strength is impaired.

LIV. If after immoderate watching a man sleep seven hours, the perspiration will be more than usual, by about a pound.

LV. Continued watching renders men's bodies more ponderous, not by reason of the greater perspiration, or sensible evacuation, but because the recruit of fat and flesh is not answerable to what had been wasted.

LVI. In the morning the body both is, and is felt less ponderous; it is so, because by the precedent sleep three pound of perspirable excrements were evacuated; it is so felt, not only because it is lighter, but also in regard that
by

by the concoction of the meats that were easily perspirable there is an augmentation of strength.

LVII. A man's body may become more ponderous by unusual watching, if the meat, wherewith it is fed, be unfit for perspiration.

LVIII. There is so plentiful an exhalation of the body in persons sleeping, that not only the sick lying with the sound, but also the sound among themselves do mutually communicate their good or evil dispositions.

APHORISMS ADDED BY THE AUTHOR.

LIX. **AFTER** meat sleep; after sleep concoction; after concoction, transpiration is best.

LX. Diacydonium, or marmaleet, not taken immediately after supper but after the first sleep, excites sleep, provided there be nothing drunk after it.

LXI. Diacydonium, or marmaleet, taken with a little cinnamon, strengtheneth the stomach; and that being strengthened, sleep always follows.

LXII. A small quantity of generous wine and garlic cause sleep and perspiration, but if a man take more than is requisite they obstruct both; however they convert the perspirable matter into sweating.

LXIII. That man will doubtless come to a great age who does daily concoct and digest well; concoction is caused by sleep and rest; digestion by vigilance and exercise.

LXIV. If the weariness ensuing after sleep be taken off by usual exercise, the defect was in the digestion, and not in the concoction.

LXV.

LXV. When we rise from sleep with our usual weight, but with greater unweildiness, if it be not taken off by our accustomed exercise, it signifies an accumulation of crudities, corruption of meat, or immoderate coition.

LXVI. Unusual sleeping at noon is hurtful to all the entrails, and checks perspiration.

LXVII. Weariness or unweildiness after sleep is taken off by those things which facilitate perspiration : these are abstinence, exercise, vigilance, and anger.

LXVIII. If the body lie loose and flat, sleep is hurtful ; if it be contracted, it is good : the entrails lying close and compacted together having easy concoction, but when they are loose, by one's lying at length, they have a difficult concoction.

LXIX. If in sound persons, a cold sweat ensue after sleep it argues they perspire less than they should do, and in process of time, if the same thing happens, they are troubled with the gout.

LXX. By immoderate sleep, and excessive drinking of wine, the strength is suffocated ; by excessive vigilance and exercise, it is dissolved : all these diminish concoction, and that diminished, there is a stoppage of requisite perspiration.

OF EXERCISE AND REST.

Section V.

I. THE occult perspiration of a man's body is less in violent motion, than it is in the morning, nine or ten hours from the time he had supped.

II.

II. That which is evacuated in violent motion by the pores is sweat, and an occult perspirable matter : but, as it is violent, it is raised for the most part out of unconcocted juices : for it seldom happens that there should be so great a collection of concocted perspirable matter in the body as is evacuated by violence.

III. Sweating always proceeds from a violent cause, and as such (as statical experiments make it appear) it obstructs the occult evacuation of concocted perspirable matter.

IV. The body perspires much more lying quietly in bed than turning from one side to another by frequent agitation.

V. Cheerful and angry persons are less wearied by long travelling than the fearful and pensive : for the former perspire more healthfully, but the other less.

VI. Those bodies which are admitted to refection, after immoderate exercise, receive much prejudice ; because, as they are wearied and burthened with meat, they perspire less.

VII. Exercise from the seventh hour to the twelfth after refection, does insensibly dissolve more in the space of one hour than it does in three hours at any other time.

VIII. Insensible evacuation after violent exercise obstructs the successive recruiting of that which is wasted : nay, if the same violence should continue, the body will be rendered so light, that in many there would be some danger of a future consumption.

IX. By exercise men's bodies are made lighter : for all the parts, especially the muscles and ligaments, are cleansed from excrements by motion, the perspirable matter is prepared for exhalation, and the spirits are made more tenuous, or subtile.

X. Motion prepares bodies for the evacuation of sensible and insensible excrements; rest does it rather for that of the insensible only.

XI. If the body lie quietly in the bed after supper for the space of ten hours, it shall perspire excellently well: if it rest there yet somewhat longer, there follows immediately a diminution of both sensible and insensible evacuation.

XII. Long rest renders indisposed bodies more weighty, as well in regard the perspirable excrements are prepared for evacuation by motion, as also for that the meat and drink, if such as the patient is not accustomed to, or more in quantity than is requisite, are not digested; and thence proceed all inconveniences, and many times death.

XIII. If a person who has kept his bed long be troubled with pain in the feet, the remedy is walking; if one that is upon a journey be so troubled, the remedy is rest.

XIV. There are two kinds of exercises, one of the body, the other of the mind: that of the body evacuates the sensible excrements; that of the mind the insensible rather, and especially those of the heart and brain, where the mind is seated.

XV. An excessive rest of the mind does more obstruct perspiration than that of the body.

XVI. The exercises of the mind which most conduce to the cheering up of the spirits, are anger, sudden joy, fear, and sorrow.

XVII. Men's bodies resting in bed, and agitated with a vehement motion of the mind, for the most part become more faint, and less ponderous, than if there be a tranquillity of mind, with a violent motion of the body, as it happens at tennis, or any game at ball.

XVIII. By immoderate exercise the excrements of the first and second concoction are for the most part dispersed through the compass of the whole body, and therefore the belly is hardened; yet are the bodies made lighter, because the insensible evacuation is much greater than the excretion of the sensible excrements made by the belly.

XIX. Violent exercise of mind and body renders bodies of lighter weight, hastens old age, and threatens untimely death: for, according to the philosopher, those persons that are exercised die sooner than such as are not.

XX. Violent exercise takes off from a body filled with meat or crude humours a less than usual weight of the sensible excrements; of the insensible, almost nothing at all.

XXI. By exercise the body perspires less, by sleep, more, and the belly is more loosened.

XXII. Frictions and cupping-glasses, in bodies full of crudities, obstruct perspiration.

XXIII. Then is exercise most wholesome; when, after the completing of the first and second concoction, the body is reduced twice in a day, before meat, to its usual weight.

XXIV. Swimming immediately after violent exercise, is hurtful; for it very much obstructs perspiration.

XXV. Violent exercise in a place where the wind blows is hurtful.

XXVI. From the wind proceeds a difficulty of respiration, from the motion, acrimony.

XXVII. Riding relates more to the perspirable matter of the parts of the body from the waist upwards, than downwards: but in riding, the amble is the most wholesome, the trot the most unwholesome, pace.

xxviii. Waftage in sedan or horse litter, as also going by water, does not so much dispose bodies to due perspiration, as walking.

xxix. The motion of a boat and litter, if it be continued long, is most wholesome; for then only it does wonderfully dispose the body to due perspiration.

xxx. Riding in a coach or chariot is the most violent of any way: for it does not only cause the unconcocted perspirable matter to exhale out of the body, but also offends the solid parts of the body, and particularly the reins.

xxxi. Leaping does at first attract the strength inwards, then impetuously forces it to the external parts, and with a certain violence expels the concocted matter, together with the unconcocted.

xxxii. The exercise of the top, consisting of moderate and violent motion, to-wit, walking and the agitation of the arms, promotes perspiration.

xxxiii. Moderate dancing, without any capering or jumping, comes near the commendation of moderate walking; for it moderately expels the concocted perspirable matter.

APHORISMS ADDED BY THE AUTHOR.

xxxiv. **W**HEN there is a defect of perspiration in sound bodies, it is remedied by exercise.

xxxv. By immoderate exercise the fibres are hardened, whence follows old age, which is an universal hardness of the fibres: this hardness, by condensing the passages, obstructs

obstructs the heat ; softness, by keeping them open, causes length of life.

XXXVI. He who would have a youthful face long, let him avoid sweating, or perspiring too much through heat.

DE VENERE.¹

Sectio Sexta.

I. NIMIA abstinencia à coitu, et nimius usus, impediunt perspirationem, sed nimius usus magis.

II. Post coitum immoderatum quarta pars solitæ perspirationis in pluribus prohiberi solet.

III. Mala à nimio coitu orta mediata à prohibita perspiratione, immediata à læsis concoctricibus dependent.

IV. Cognoscitur coitum profecisse, si à sequenti somno nulla sentiatur lassitudo, nec ulla corporis mutatio facta sit in gravitate, vel levitate.

V. Diuturnæ venereorum cogitationes, modò gravius, et modò levius efficiunt corpus; gravius si pleno, levius si vacuo fiant stomacho.

VI. Post nimium coitum cum muliere, quam maximè concupita, non sentitur illicò lassitudo: animi enim consolatio juvat tunc perspirationem cordis, et auget ejus robur, unde in ipso quod amittitur, promptius remittitur.

M 2

VII.

¹ The classical reader will easily perceive why this chapter is not translated.

VII. Propensi ad coitum si temperent libidinem, illico succedit corporis agilitas, quia tales melius perspirant.

XIII. Immoderatus coitus facit perspirare cruda, quæ deinde carnes frigidas efficiunt.

IX. Coitum non nocuisse, hæc indicant : urina æquè cocta ut ante, corporis agilitas, respiratio facilior, et idem fere corporis pondus perseverans ; eadem tamen servata eorum quæ ingeruntur quantitate et qualitate.

X. Præsens vulnus immoderati coitus est stomachi refrigeratio : futurum, prohibita perspiratio, unde facile sunt palpitationes in superciliis et artubus, et deinde in membris obtinentibus principatum.

XI. Coitus in ætate magis nocet : non quia corpus magis perspirat, sed quia coctio, cum sit minor, deperditum difficilius refarcitur.

XII. In actu venereo multum crudi perspiratur, et si diu duret, cruda transferuntur à centro ad corporis ambitum, sunt obstructions, et inde alvus supprimitur.

XIII. Quanto quis majori coeundi cupiditate conflagrat, tanto ejus usus immoderatus minus lædit.

XIV. Coitus immoderati detrimentum præcipuè manifestatur post somnum sequentem ; tunc enim ex Staticis experimentis cognoscitur perspirationem esse impeditam, et cibum esse male digestum, nec non stomachum valde læsum.

XV. Coitus lædere solet primam coctionem, primo diminuendo perspirationis proptitudinem, deinde in crudam qualitatem convertendo cibum.

XVI. Qui coitu utitur, et sperma non emittit, minus debilitatur. Itidem si die sequenti utatur, et emittat quod die precedenti fuit præparatum, minus debilitatur.

XVII. Illi qui coeundo sperma ex studio non emittunt, in
tumorem

tumorem testiculorum facile incidunt: spermâ enim est imperpirabile.

xviii. Coitus immoderatus post stomachum lædit magis oculos.

xix. Coitus immoderatus lædit visionem, quia ab oculis subducit maximam spirituum copiam; inde tunicæ oculorum præduræ et rugosæ, nec non meatus minus pervii redduntur.

xx. A diminuta perspiratione fibræ tunicarum oculorum opaciores; inde visio fit per spatia perexigua, qualia sunt in cancellis: Specilla uniunt objecta in cuspidem, ut distinctè per unum solum spatium videatur.

xxi. A coitu immoderato diminuitur calor naturalis; à diminuto calore diminuta perspiratio; à diminuta perspiratione flatus et palpitatio.

xxii. Coitus immoderatus postulat cibos paucos, et boni nutrimenti.

xxiii. Coitus calefacit jecur et renes, quia excitatus calor minus exhalat: refrigerat verò stomachum, cerebrum et cor, quia per meatus patentiores excitatus omnino, et proprius aliqua ex parte propterea resolvitur.

xxiv. Hinc coitus immoderatus in hepate bilem, in renibus nephriticum affectum, in stomacho crudum succum, in cerebro catarrhum, et in corde palpitationem et syncopen.

xxv. Edulia post nimium coitum si flatus gignant, ut ostreacea et mustum, perniciofa: impediunt enim ne ad consuetum pondus corpora reducantur.

xxvi. Macilentis magis nocet coitus, quia magis calefiunt, et magis refrigerantur.

xxvii. Coitus immoderatus illico maximè leve efficit corpus, quamvis deinde perspirationem prohibeat: est enim vehemens corporis et animi motus; corporis, quia

omnia membra conquassantur : animi, quia resolvitur quod colligat animum corpori, spiritus scilicet vitalis.

XXVIII. Si post coitum somnus laborem facit, ex coitu major facta est ablatio, quam ex somno facta sit vitalis spiritus additio.

XXIX. Post nimium coitus usum, somnus trahit cruda ad cor : unde languor, prohibita perspiratio, et ponderis augmentum.

XXX. Senes ex usu moderati coitus fiunt ponderosiores et frigidiores : juvenes verò leviores et calidiores.

XXXI. Coitus in juvenibus, animalem, vitalem, et naturalem facultatem roborat : animalem per motum expurgat, et sopitam excitat ; naturalem per evacuationem superflui ; et vitalem per lætitiā.

XXXII. Cibum copiosior solito, post immoderatum coitum, interimerit, nisi succederet aliquæ ciborum corruptela.

XXXIII. Dum est coeundum, parum vel nihil comedendum : dum est comedendum, parum vel nihil coeundum,

XXXIV. Si post coitus excessum nulla perferitur lassitudo, malum : id perinde ac in phreneticis fit ab incensis spiritibus, qui exiccando, brevi spatio, roborant nervos et tendines, sed paulo post imminuitur spirituum generatio ; et vires derepente cadunt,

ADDITI AB AUCTORE.

XXXV. Coitus juvat excitatus à natura : à mente mentem et memoriam lædit.

XXXVI. In debili ob coitum augetur corporis pondus : quia minus perspirat.

XXXVII. Coitus importunus impedit perspiratum, quia diminuit vires : unde corpus fit majoris ponderis, nisi sequatur alvi fluor.

XXXVIII. Nimius coitus calefaciendo et exsiccando magnam jacturam facit : si verò insensibili perspiratione remittatur caliditas, et alimento siccitas, nullam.

XXXIX. Corporis agitatio in coëundo, instar canum, magis nocet, quam feminis emissio : hæc solum viscera, illa omnes nervos et viscera defatigat.

XL. Usus coitus à cibo, et stando, lædit à cibo, viscerum officia divertit ; stando, musculos et eorum utilem perspiratum diminuit.

XLI. Post motum, coitus insalubris ; post cibum, non ita ; post somnum, saluberrimus.

XLII. Coitus calefacit jecur, et refrigerat stomachum ; à stomacho, crudus succus ; à jecore, bilis : unde poracea, et oris morfus. Remedio est victus tenuis et libera perspiratio.

OF THE AFFECTIONS OF THE MIND,

Section VII.

I. **AMONGST** the affections of the mind, anger and alacrity render men's bodies lighter, fear and sadness, more ponderous; and the rest of the affections operate answerably to their participation of these.

II. In grief and fear that which is lighter perspires, but what is more ponderous is left behind; in gladness and anger there is a perspiration of both.

III. Hence it comes to pass that such as are subject to fear and grief are apt to be troubled with obstructions, hardness of the parts, and hypochondriacal affections.

IV. Such as are angry or joyful feel no weariness in travelling; for their bodies easily perspire the gross matter; which happens not when they are troubled with grief or fear.

V. The ponderous part of perspirable matter being more than usually retained in the body, disposes a man to sadness and fear; but the light part disposes him to gladness and anger.

VI. Nothing contributes more to freedom of respiration than satisfaction and consolation of mind.

VII. By sadness and fear the members most full of moisture are easily indurated.

VIII. Grief and fear obstruct the perspiration of the gross perspirable excrements; and the obstruction of perspiration,

piration, from what cause soever it proceeds, causes grief and fear.

ix. Grief, if it continue long, brings a coldness on the flesh; for it hinders the exhalation of the gross portion of the perspirable matter.

x. Hence it comes, that that fever which a man falls into after much grief, discovers itself in cold sweats, and those many times mortal.

xi. The acrimony of the perspirable matter which is retained by the means of grief, is conveniently taken off by alacrity; for pleasant humours are thereby diffused through the body, and thereupon ponderosity and acrimony are taken off from it.

xii. Anger and hope take away fear, and joy taketh away sadness: for a passion of the mind is overcome, not by medicines, but by some contrary passion; for contraries are under the same genus.

xiii. It does not imply any contradiction to affirm, that the retention of the perspirable matter in melancholy persons is cold and acrimonious, or hot: such are the livers of hydropical persons who are in fevers; to-wit, they are cold in respect of the natural heat, and hot in respect of the adventitious.

xiv. Diseases proceeding from melancholy and a close muddy air, agree in this, that they are immediately occasioned by the grossness of the perspirable matter which is retained: for grief does intrinsically obstruct the excretion of the gross matter, and the muddy air does it extrinsically.

xv. They who carry grief along with them to their beds, perspire so much the less that night; and the next day their bodies continue more than usually ponderous.

xvi. In venerous meditations, the gross part of the perspirable

spirable excrements, is with grief retained; which part, upon the evaporation of the subtile, becomes yet more gross and more cold: if this be pent up together, it causes an almost invincible coldness in the head, and a hardly curable palpitation in the heart, or other members.

xvii. Melancholy is two ways overcome, either by a free perspiration, or some continual satisfaction of the mind.

xviii. If mens bodies become lighter after grief than after joy, it must of necessity happen either by reason of a less quantity of meat, or by that of their more transpirable quality.

xix. The consolation of the mind, from whatsoever cause it proceeds, opens the passages, and very much promotes perspiration.

xx. If, after anger, there immediately ensue some consolation of the mind; or the contrary happen, men's bodies, allowing an equal proportion of aliment, are lighter the next day, than they would be if only anger or joy had continued.

xxi. As there is a sudden period put to some great pleasure by a small evacuation of seed: so all other immoderate affections of the mind may be abated and taken off, by some evacuation of the perspirable matter.

xxii. Fear and grief, as we find by statical experiments, are taken off by the evacuation of the gross perspirable excrements; anger and alacrity by that of the tenuious.

xxiii. If any one find himself in a merry jocund humour, without any cause, it proceeds from a greater freedom of perspiration, and his body will be found the next day of less weight.

xxiv. Moderate joy insensibly evacuates what is superfluous;

fluous; immoderate joy, both what is superfluous and what is beneficial.

xxv. Moderate joy afflicts the concoctive faculties; for nature, not being burthened with that which is superfluous, does much better perform her functions.

xxvi. Unexpected joy is more hurtful than that which is looked for: for it does not only excite the evacuation of the excrements of the third concoction, but also the exhalation of the vital spirits; but the expected joy promotes only that of the excrements.

xxvii. Joy and anger take off from the body what makes it more ponderous, and what renders it more light; grief and fear take away only what makes it more light, but what makes it more ponderous is left behind.

xxviii. A continual gladness for many days together hinders sleep, and renders a man weaker.

xxix. If any one, after moderate joy, finds himself lighter, it does not proceed principally from the evacuation of the whole body, but from that of the heart and brain, whence what is evacuated is least of all, as to quantity, and greatest, as to virtue.

xxx. Those aliments which open and facilitate perspiration produce joy, those that obstruct it, grief.

xxxi. Parsley, and other aliments that are opening, induce joy; pulse, fat meat, and other things which increase, and presently fill the cavities of the passages, cause grief.

xxxii. If the cavities of the passages be evacuated, and afterwards presently filled, it was rightly said of Hippocrates, that evil passions of the mind are generated.

xxxiii. To those who are subject to anger, immoderate exercise is very hurtful; for their passages are immediately emptied, and with much violence are filled up again; whence

whence it came that Hippocrates forbade choleric persons to use frictions and wrestling.

XXXIV. In a person who uses no exercise of body or mind, the passages are not emptied, nor are there any evil passions of the mind contracted.

XXXV. A body lying all along does perspire more and becomes of less weight, if the mind be vehemently active, than if the body were in a very swift motion, and the mind were idle.

XXXVI. The shifting of the body from one place to another makes a longer alteration of the body than of the mind itself.

XXXVII. The passions of the mind are concerned about the internal subject, which rather moves, than is moved: inasmuch, as it is least as to quantity, and greatest as to virtue, like the sperm of man; and by the disposal thereof, in several manners, is the origin of perspiration, or ponderosity, and lightness.

XXXVIII. Those bodies which perspire more than usually, not occasioned by any motion of the body, but through some vehement agitation of the mind, are with greater difficulty reduced to their usual and healthy perspiration.

XXXIX. An immoderate affection of the mind is more hurtful than an immoderate motion of the body.

XL. The body would pine away, and be destroyed through idleness, were it not for the motion of the mind; but the contrary cannot be affirmed.

XLI. A vehement motion of the mind differs from a vehement motion of the body; the latter is taken off by rest and sleep; the former by neither rest nor sleep.

XLII. Let those forbear gaming whose thoughts are altogether upon winning; because if they always have good fortune,

fortune, out of excessive joy, they will hardly sleep in the night, and, in time, will find the want of the exhalation of the concocted perspirable matter.

XLIII. A moderate victory is more wholesome than a glorious one.

XLIV. Study is longer endured in a vicissitude of the affections of the mind, than if it be without affection, or without any change of affections; for perspiration becomes more moderate and more wholesome.

XLV. Study, without any affection, hardly endures an hour; with any one affection, hardly four hours; with vicissitude of affections, as at dice, at which kind of gaming men feel, one while the joy for winning, another, sadness for losing, it may continue night and day.

XLVI. In all study continual sadness disturbs the good constitution of the heart, and excess of gladness hinders sleep; for every excess is destructive to nature.

XLVII. They who are sometimes merry, sometimes sad, sometimes angry, sometimes timorous, have a more healthful perspiration than they who continue in one and the same, though that a constantly-good affection.

XLVIII. Gladness makes the diastole and the systole more easy; grief and sadness render them more difficult.

TO THE STATICOMASTIX.

Section VIII.

I. THE staticomastix, while he attributes the cure of diseases to the position of the heavens, paralogises, by assigning a more common cause than he needed to have done.

II. The fool first denies, yet afterwards admits, statics or ponderation, affirming that there is a diversity of weight in a guilty person, and an innocent. In like manner, he first denies that the spirits of swine are light; and afterwards he would have their getting up to any place to proceed from the lightness of their spirits.

III. He who is experienced in statics, knows the weight of the excrements, though he neither see them, nor weigh them. He weighs the body before, and again, after all evacuation; what is deficient is their weight: and so it is no unseemly thing to weigh the excrements, as the trifler affirms.

IV. No student in physic, besides the fool himself, but knows, that the vital faculty is diffused into the arteries, and the animal into the nerves, by rays, and not by spirits; as he imagines.

V. The fool thinks that lightness, as to the balance, in living bodies, proceeds from the plenty of spirits; it seems he never knew that dead bodies are lighter than the living, and that living bodies, after coition, weigh less.

VI. He belies the author, affirming that the faculty of moving bodies upwards is no other than the spirits themselves; whereas the author affirms, that the spirits are inanimate, and that they gravitate more than air.

VII. He is out again, when he affirms that men's bodies are colder in the night time; therefore they perspire little or nothing. Nor did he ever observe, that the pulse and nocturnal perspiration are signs of a more hot body.

VIII. The fool thinks that living bodies are lighter than the dead; never having taken notice, that butchers, fish-mongers, and such as deal in swine, when they sell the living, make a deduction of ten pounds in the hundred weight.

IX. The extravagant man never thinks of the difference there is between one's being light, if weighed in the balance, and the same person's feeling himself lighter. A man may be sensible of his being very ponderous, and yet be lighter in the balance.

X. We know the weight of the body by measure, not by imagination, as our inconsiderate fool does, who imagines that flegm is more ponderous than blood, yet never observed, that the former does swim on the top; and that by reason of flegm the body is not really, but is felt, of greater weight. But why? because it obstructs perspiration.

XI. He charges the author with a falsity in making him affirm that insensible perspiration is a diffation of the flesh, when he affirms no such thing. In the winter-time, there are about sixty ounces perspired in the space of one day with ease; if that perspiration were of flesh, a man's body would be destroyed.

XII. Galen made no mention of static medicine, therefore it is a vain science. He is doubly mistaken; first, because he never read his six books *De Tuenda*, &c. Secondly, it does not follow, Galen said nothing of it, therefore it is vain: we have found out many instruments, and those not contemptible, which were not known before our times.

xiii. The famous author of the Commentary on the 12th of the first section of aphorisms, affirms, that the meat is proportioned to the distillation, and, Com: 15th, that there is a greater distillation in the winter-time, therefore it is requisite there should be more meat eaten; it is therefore requisite the weight should be known; all which the trifling staticomastix denies.

xiv. The fool, making no experiments himself, denies those things that others have found true by experience. He boldly adds this assertion,—if thirty-six ounces be perspired in the space of one night, there will be thirty-two of flesh, and four of excrements.

xv. The trifling answerer puts the lie on all authors, affirming that the spirits are more tenuous than the air. Are they not made of the blood and air? does not the air pass through the whole body? but the spirits remain inclosed in vessels.

xvi. He affirms that a plentiful perspiration does not take away from the body one ounce of its weight. There is no temerity deserves greater punishment, than such a man's, as makes no account of experience, yet opposes experience. We have found it certainly true, that in the space of a night, the body weighs less by three pounds, and that after coition, men's bodies are lighter, as to the balance. Therefore the fool is chargeable with a lie.

xvii. He affirms, that after an immoderate purgation of the termes, bodies are more ponderous; after an extraordinary retention of them, more light. A fatal error to the inconsiderate man, who does not distinguish between being heavy, in reference to the balance, and one's feeling himself heavy.

NUMBER V.

MODERN DISCOVERIES REGARDING PERSPIRATION.

SANCTORIUS deserves great commendation for the prodigious pains he took in so nicely and minutely observing, for so long a space of time, the different changes of the quantity of perspiration upon different occasions.

But is it not amazing, that in thirty years space, he should never once have thought on inhalation, or resorption from without ? If inhalation or resorption is not considered, it is plain, that only the apparent, not the real, quantity of perspiration can be found by statical experiments. If, for example, the body, after ten hours, is found lighter than it was by ten ounces, without any sensible discharge, it doth not follow, that just ten ounces, and no more, are exhaled during that space, because two or three ounces might have been gained in the same time by the way of resorption ; in which case, the real quantity of perspiration is not ten, but twelve or thirteen, ounces ; so that weighing the body shews only the excess of the latter above the former, as Dr. Arbuthnot hath, and I believe the first, distinctly and explicitly taught.

A lad, at Newmarket, having been almost starved, in order that he might be reduced to a proper weight for riding a match, was weighed at nine o'clock in the morning, and again at ten o'clock, and he was found to have gained near 30 ounces in the course of an hour, though he had only

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ounces

drank half a glass of wine in the interval.* A gentleman in the city was lately weighed before dinner, and was highly offended to find from his weight, not long after dinner, that he must have eat, unless some deceit was played on him, above two pounds of beef-steaks, so much had he increased in weight.

In the year 1779, Dr. Ingenhouz discovered that the animal body threw out azotic and fixed airs. In the very same year, Mr. Cruickshanks, the celebrated author of a work on the absorbent system, and lecturer on anatomy in London, published a similar discovery; and in justice to both characters, I must observe, as I heard from Dr. Ingenhouz, that their respective works were in the press at the same time. This however is not the only instance of two persons, ignorant of each others pursuits, happening to hit upon the same thing. Nothing was more simple than the experiment of these philosophers; the hand was immersed under quicksilver and the bubbles of air collected, and it was discovered, that the discharge from the surface of the body was,

1. Two parts *fixed air*.
2. One part *azotic air*.
3. A quantity of *aqueous fluid*, which contained the different salts of the body.

To these discoveries, confirmed by Mr. Abernethy, lecturer on anatomy at Bartholomew's hospital, was added an important fact, that the absorbents had the power of separating the oxygen air from the azotic, that is, of decomposing our atmosphere, as also of absorbing fixed and other airs.

EXPERIMENT

* From Dr. Watson's Chemical Essays.

EXPERIMENT I.

Thermometer between 50° and 60°.

I filled and inverted, says Mr. Abernethy, a jar in quicksilver, and threw up into it one measure of atmospheric air, which could contain seven ounces of water. The quicksilver was depressed two inches and a half from the top of the jar. After moving my hand ten minutes beneath the surface of the quicksilver, to detach any common air which might adhere to it, I put it up into the air in the jar, and there retained it for the space of an hour. Before I withdrew my hand, I depressed it beneath the surface of the quicksilver, still keeping it within the glass, and agitated it in this situation, for ten minutes: this was done that I might not remove any of the air, which was the subject of the experiment. The same conduct was pursued in all the subsequent experiments. After five hours exposure of the hand to this air, the quantity in the glass was *diminished* about *half an ounce*. It might have been expected that the *perspiration* would have increased the bulk of the air, but in this experiment, the *absorption* seemed to surpass in quantity the secretion.

I now threw up into the jar lime water, by which nearly an ounce of air was rapidly absorbed, and the lime was precipitated; the remaining air being examined by the addition of nitrous gas, was found to contain nearly one sixth less of oxygen gas, than it did before the experiment.

In another similar experiment, after the hand had continued nine hours in the air, I found more than one ounce measure of carbonic gas, or fixed air, had been produced, and the remaining air being examined by the eudiometer,

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contained

contained one fourth less of oxygen than before the experiment.

It might, perhaps, here be inquired, does the oxygenous gas of the atmosphere contribute to the formation of the carbonic gas?—Both reason and experiment reply that it does not; for if oxygenous gas combined with carbon on the surface of the skin, much heat should be produced at the time of their combination; but this production of heat is not found to take place. Experiments also shew that carbonic gas is perspired from the vessels; for into whatever air the hand be immersed, the quantity of carbonic gas given out will be nearly the same. This is a point which I have determined by careful experiment.

EXPERIMENT II.

Having filled and inverted a jar in quicksilver, I put up into it a seven-ounce measure of *azotic gas*. I pursued the plan related in the former experiment, to avoid adding to, or abstracting from, this air. After two hours exposure of the hand, on throwing up lime water, a rapid and considerable diminution of air followed; so that rather more than an ounce of carbonic gas was produced, when no oxygen was present. The increase of the quantity of carbonic gas is accounted for in this experiment, by the heat of the atmosphere being greater, which disposed the skin to more copious perspiration.

I made similar experiments with the *hydrogenous* and *nitrous gases*: in these an equal quantity of carbonic gas was produced; and when the hand was surrounded by oxygen, the quantity of carbonic gas was not much greater.

EXPERIMENT

EXPERIMENT III.

Thermometer about 50°.

I next wished to discover what effect the action of the hand would produce on carbonic gas.

Into a glass jar filled with, and inverted in, quicksilver, I introduced six ounces of *carbonic gas*, and exposed my hand to it, for the space of nine hours, in the manner, and with the precautions, before related. In that time the air was reduced in quantity to less than three ounces. A portion of the carbonic gas was examined, by the addition of lime water, before the experiment, when it was almost wholly absorbed, an unexaminable bubble only remained. When the remaining gas was examined by lime water, after the experiment, a considerable quantity of *azotic gas*, which doubtless exhaled from the hand, was found mixed with it.

I twice repeated this experiment, with similar events, though with rather less diminution in the quantity of carbonic gas: it was however sufficiently evident, that the absorption of this gas by the skin was very copious and rapid.

EXPERIMENT IV.

Thermometer 80°.

The absorption of carbonic gas makes it difficult to ascertain precisely the quantity perspired, since that gas which is thrown out from the body by secretion, will probably be re-admitted by absorption: I therefore wished to discover the quantity of carbonic gas perspired in one hour.

The hand being retained one hour in five ounces of nitrous gas, no ascent nor depression of the quicksilver was

remarked. On the introduction of lime water into the glass, *six drams* of carbonic gas were absorbed.

In a similar experiment with atmospheric air, after the expiration of an hour, the quicksilver had rather risen, and *three drams* of carbonic gas were discovered by lime water. In another experiment, in which hydrogenous gas was employed, *four drams* of carbonic gas were found at the termination of an hour.

All the last related experiments were performed in very hot weather. If two drams of carbonic gas were emitted in an hour, as the quantity usually obtained in five hours was but one ounce, it would be a sufficient demonstration of the absorption of a part of the air perspired. Neither are these experiments conclusive as to the precise quantity of air emitted; for even in an hour part of that which is exhaled will be again imbibed. When I first attempted the experiments with carbonic gas, I supposed that the absorbents would receive it reluctantly; for I thought that matter which was thrown out from the skin in such quantities, could neither be requisite nor salutary to the body. The experiment proved that I was mistaken, and there are reasons to shew the salubrity of this gas. When it is admitted into the stomach, it is generally found beneficial. When employed as a local application, its stimulus is useful, and when in combination with the blood, it probably produces equally serviceable effects.

EXPERIMENT V.

Thermometer between 60°. and 70°.

The experiments that have been related, indistinctly shew, that a small quantity of one kind of air, when mixed

ed with a larger proportion of another, can be abstracted from it by the action of the animal body. This circumstance will be hereafter fully proved. I will now relate an experiment that was made in support of this opinion, as it was performed beneath quicksilver, and in the same manner with those which immediately precede it.

Into a jar, filled with, and inverted over, quicksilver, three measures of *azotic* gas and three of *carbonic* were introduced; the two airs depressed the quicksilver two inches and a half, and occupied the space of seven ounces of water. After five hours exposure of the hand, the air contained in the jar filled the space of only five ounces and a half of water; on putting up lime water to this air, it was diminished to three ounces. In this experiment one ounce and a half of carbonic gas appears to have been removed, and half an ounce of azot; but if you admit that one ounce of carbonic gas was perspired during this experiment, and one third of an ounce of azotic, the quantity of air estimated to be absorbed is increased, but the proportions remain unaltered.

EXPERIMENT VI.

Thermometer 60°

In the experiments with common air, I have mentioned that it contained less oxygen after it had undergone the operation of the hand, than before it became the subject of experiment. A question here occurs, does this variation proportionably arise from the addition of the one gas, or the removal of the other? That it is owing to absorption will, I believe, be evident, from the following experiments.—

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Although

Although the addition made to any kind of air cannot be accurately ascertained when water is employed, yet, if the hand removes any portion of air, that removal will be ascertained by examination; neither does the experiment appear liable to deception. In the experiments next related, the air was confined by water; this gave me an opportunity of using larger vessels, and exposing a greater extent of surface of the skin to the contact of the air. I forbore particularly to remark the quantity of air absorbed in the foregoing experiments; for though it corresponded to those which I shall next relate, yet the correspondence was not uniform, and the degree of absorption was less evident.

I filled and inverted a jar in water, and put up into it twenty-four ounces, by measure, of *atmospheric air*; to this the hand was exposed for twelve hours, the same precautions being used to avoid adding to, or taking from, the air contained in the jar. The water had risen in the vessel, and about two ounces and a half of the air were removed; that which remained was examined by the eudiometer, when two measures of it, and one of nitrous gas, filled the space of nearly two measures, and one third of another: it therefore follows, that about one half of the usual quantity of oxygenous gas was removed from the other part of the atmosphere. That there could be no addition of nitrogenous gas capable of so greatly altering the proportions of these gases, must, I think, be too evident to need argument for its proof. Similar experiments were afterwards made with correspondent events. In the experiments made under quicksilver, the abstraction of oxygen was equally evident and considerable; it therefore appears, that the animal body is capable of taking away the
oxygen

oxygen, when in intimate mixture, with a much greater quantity of azot. The avidity with which oxygen is absorbed, will be made still more conspicuously evident by the following comparative experiment.

EXPERIMENT VII.

I filled and inverted two jars in water, into one I put twenty-four ounces, by measure, of *azotic* gas, into the other the like quantity of *oxygen*. The hand was put into these airs alternately, and retained there for an hour each time: after it had been exposed to each for eight hours, the water rose one eighth of an inch in the bottle containing the *azotic* gas, and nearly a whole inch in that containing the *oxygen*. On estimating the quantity removed, by weighing the water which filled the bottles to the different marks, it appeared that *one twentieth* part only of the *azotic* gas was removed, but *one third* of the *oxygenous* gas was gone. The remaining *oxygenous* gas was found to contain one eighth more of *azotic* gas than before the experiment. I next examined the degree of celerity with which other gases would be imbibed,

EXPERIMENT VIII.

Having filled and inverted a jar in water, and put into it thirteen ounces of *nitrous* gas, I retained my hand in this air, at different times, five hours, in which time three ounces were absorbed. My hand being retained for as many hours in a like quantity of *hydrogen* gas, not more than one ounce and a half was removed.

The removal of a quantity of *oxygen* gas from common air, is surely a curious circumstance; if this be the effect
of

of an action in the absorbing vessels, it must much exalt our ideas of their subtilty, and their aptitude, or disposition, to admit one species of matter, and to reject another. That the abstraction of one air, in preference to another, depends upon this cause, I believe will not, on reflection, be doubted; it might indeed be suspected, that oxygenous gas was separated from the atmosphere by the skin, as it is in the lungs by chemical attraction: but it has been proved that *carbonic* gas is removed with equal celerity; and experiments on animal substance shew in them a disposition rather to part with, than to imbibe, carbonic gas. The removal of this air is therefore not likely to be the effect of chemical affinity. The different degrees of celerity with which other gases are admitted, seem to establish the opinion, that the removal of one kind of air in preference to another is the effect of an active *selecting power* in the absorbing vessels.

The experiments which have been related satisfactorily prove the quality of the aeriform perspiration; perhaps the proportions may occasionally vary, but, as nearly as I can determine, it consists of rather more than *two parts* of *carbonic*, with the remainder of *azotic gas*. The quantity of the matter perspired is with less certainty ascertained; in one hour I obtained *four drams* of *carbonic gas*: but it should be remembered, that these experiments were made in very hot weather; and it also deserves notice, that the quantity of the cutaneous perspiration is subject to great variety. In every experiment absorption was found to be equal to perspiration, in many it was much more copious; especially when the air to which the skin was exposed was salutary to the constitution. The *oxygenous* and *carbonic* gases are very readily imbibed; whilst the *nitrous*, *hydrogenous*,
and

and azotic gases, tardily gain admittance into the absorbing vessels. In experiment v. from about half of the surface of the hand two ounces and a half of carbonic gas were absorbed in five hours; in other experiments, from the hand and wrist, there was imbibed,

In eight hours	8 ounces	of oxygenous gas.
In five hours	3 do.	— nitrous gas.
In five hours	1½ do.	— hydrogenous gas.
In eight hours	1 do.	— azotic gas.

EXPERIMENT IX.

Thermometer 65°.

I next endeavoured to ascertain the quantity and quality of aqueous perspiration.

I introduced my hand and fore arm into a glass jar covered with bladder; an aperture was left in the bladder, to admit my arm, round which the bladder was tied; so that the ascent of any vapour was prevented. In six hours I procured nearly *three drams* of limpid tasteless water. The quantity collected corresponds with the result of Mr. Cruikshank's experiments, who obtained the water of perspiration in the same manner. Half of this liquid was evaporated by a gentle heat; there remained a small residue on the glass, which had a very slight taste of *salt*. The other half was suffered to stand many days, in which time no change appeared: it did not then alter the colour of the vegetable blue. Into one portion of this watery liquor marine acid was dropped, which caused no coagulation or precipitation of animal matter; into the other some caustic alkali was poured, which produced no visible effect. I therefore

therefore concluded that the water of perspiration in a state of health, contains little or any thing, except a very small portion of salt.

Perspiration is generally said to be sensible, or insensible; perhaps it may be better distinguished by *aeriform* or *watery*. It may be expected, that a general estimate of the quantity of this secretion should be attempted; but the difficulties which oppose any accuracy of statement are considerable. In these experiments the process was not continued under its usual circumstances; the arm was surrounded by water, or quicksilver; and when in the latter fluid, the circulation was in some degree interrupted by its ascension and pressure against the edge of the jar. For the uncertainty which these circumstances occasion, allowance must be made; but before an estimate of the quantity of perspiration be attempted, the extent of the surface of the body should be known. Mr. Cruickshank supposes the extent of the hand to be to that of the body as one to sixty: it is much more, according to my computation. After ineffectually endeavouring in different ways to measure the surface of the body, I concluded that I should approach nearest to its true extent by measuring the circumference of the trunk and limbs at different parts; and having thus obtained the mean circumference, I could then calculate the extent of their surface, as if they were cylinders, the dimensions of which were ascertained. The surface of the head, hand, and foot, I computed, by applying paper, cut as the occasion required, over these parts; afterwards placing the separate pieces of paper so as to form an extended plane, I measured its extent. I shall mention these measurements, that the reader may correct them if he should think them in the least erroneous. If a man be five feet

feet six inches high, I will suppose the mean circumference of the trunk of his body to be thirty-three inches, and its length, from the top of the sternum to about the hip, twenty-two inches.

	Square inches.
The extent of surface of the trunk will therefore be	726
The circumference of the neck 13 inches, its length from the sternum to the chin 3 inches	39
The surface of the head, and back of the neck	286
The mean circumference of the arm 10 inches, its length 12. Surface of both arms	240
The mean circumference of the fore arm 8 inches, its length 10. Surface of both fore arms	160
The surface of the hands and wrists measuring to the extremities of the bones of the fore arm	140
The mean circumference of the thigh 17 inches, its length 16. Surface of both thighs	544
The mean circumference of the leg 11 inches, its length 14. Surface of both legs	308
Surface of both feet	182
Allow for folds of the skin, inequalities of the surface, &c.	175
The extent of the surface of the body will be	2700

The superficial extent of the hand and wrist, according to this calculation, is to that of the body as one to about thirty-eight and a half.

In experiment iv. the least quantity of *carbonic gas* emitted from the hand, in one hour, was three drams by measure; it may be supposed that the heat of the weather increased the secretion from the skin; let us therefore consider two drams as the ordinary quantity. If then the perspiration of all parts were equal, *seventy-seven dram measures*

tures of carbonic gas and one third of that quantity of azotic gas, would be emitted from the body in the space of one hour. If we also suppose perspiration to be at all times equal, nearly three gallons of air would be thrown out from the body in the course of one day. Although the quantity of air perspired is so large, yet the weight of the body will not be much altered by its loss; it is the aqueous perspiration by which this will be principally diminished. When the thermometer was between 60° and 70°, I obtained about thirty grains of fluid from my hand and part of the fore arm in an hour; the surface from which this secretion was made I compute to be one twenty-fifth part of the extent of the body. The supposition being allowed, that perspiration is at all times, and in every part, equal, about two pounds and a half is the loss of water which the body would in one hot day sustain. In most of the experiments which I have made, the absorption of air was equal to the perspiration; in many it was much greater, especially if the air was salubrious to which the skin was exposed. Experiment vi. makes it appear probable, that if the naked body was exposed to fresh currents of the atmosphere, that only the oxygenous parts would be absorbed; the decomposition of which, in the body, would produce an increase of animal heat, which might in some degree make up the loss sustained by the exposure. Our clothing probably prevents very much this effect, and perhaps makes it less necessary. If the perspired carbonic gas be confined by our garments, it seems likely that it will be taken up again by the absorbents. Whether the body does usually imbibe water from the atmosphere, adequate to the loss sustained by aqueous perspiration, is uncertain. But I am inclined to suppose, that the absorption of air from the skin is nearly equal to the secretion.

NUMBER VI.

OF THE FOREIGN AUTHORS WHO WROTE CONCERNING
HEALTH, FROM THE TIME OF SANCTORIUS, TILL THE
TREATY OF UTRECHT.*

AN attempt to analyse the numerous foreign authors who wrote regarding health and longevity, from the time of Sanctorius, till the peace of Utrecht, would be indeed a laborious undertaking; but the author of the History of Health having given a short account of some of the most remarkable amongst them, it may be sufficient to extract from his work the particulars which he mentions.

He begins with remarking the great advantage which physicians derive from a knowledge of the nature and quantity of insensible perspiration, ascertained by Sanctorius; and the glorious discovery of the circulation of the blood, which the immortal Harvey published about the year 1628. Some of the following authors, however, could not avail themselves of these important discoveries, being made posterior to their time.

Rodericus a Fonseca, a Portuguese of Lisbon, principal professor of physic in the university of Pisa, and afterwards of Padua, published, *anno* 1602, a treatise *De tuenda valetudine*.

* Extracted from M^r Kenzie's History of Health, page 291.

tudine et producenda vita, ad Ferdinandum Medicem magnum Hetrurie ducem; in which he proposes to conduct the infirm as well as the robust, to a healthy old age. He declares that he collected his rules from the Greeks and the Arabians, but more particularly from Galen's six books of Preserving health. The six things necessary to human life, are by him called the six instruments* by which health is maintained. He was undoubtedly a man of learning and good sense, and has made a judicious collection of useful precepts from the ancients.

Aurelius Anselmus of Mantua published his *Gerocomica sive de senum regimine*, anno 1606. He was chief physician to the duke of Mantua, though but a young man, and declares, that he writes concerning old age, because it is the only period of life, in which a man may be properly said to live, as it excels all other periods in understanding and prudence. "Old people are much obliged to him for his good opinion of them; but it is obvious that his rules to direct them must be grounded upon the experience of others." To him shall be subjoined,

Franciscus Ranchinus, professor at Montpelier, who also published a *Gerocomicé de senum conservatione, et senilium morborum curatione*, anno 1625. It is a very judicious performance, and shews the author to have been a man of erudition and good understanding.

Rodolphus Goelenius, a German physician, dedicated a treatise, *De vita proroganda*, to Frederic count palatine of the Rhine, and Otho landgrave of Hesse, anno 1608. He

* Instrumenta illa, cum quibus servatur sanitas, diligenter explicanda sunt: hæc vero sunt numero sex, scilicet, cibus, potus, &c.

collected his materials from several historians, philosophers, and physicians, ancient and modern; and has illustrated his medical precepts with historical facts, which renders them both useful and entertaining.

Claudius Diodatus, physician to the bishop of Basil, published, anno 1628, his *Pantbron Hygiasticum Hippocraticum Hermeticum, de hominis vita biscentum et viginti annos solubriter producenda*. But notwithstanding the great expectation which he raised by this high title, his book (full of the vain boasts of the chymists) is calculated rather to obtrude particular nostrums than to give prudent rules for the government of health.

Johannes Jonstonus, a Polish* physician, of good reputation, addressed to a nobleman of that country a treatise called *Idea Hygieinis recensita*, anno 1661. He discourses of the six instruments of health, and recites the common rules in a neat Roman style.

Some authors of this period have taken the trouble to write against particular sorts of food in common use. To give but one instance, Joannes Petrus Lotichius published a dissertation against cheese, anno 1643, entitled *Tentamen medicum philosophicum novum de casei nequitia*, which seems to be rather ludicrous than serious or valuable.

I shall take notice of one foreign performance more, concerning health, because it is somewhat different from any that we have hitherto mentioned.

* I thought, by his name, that he was a Frenchman, but found my mistake in the following paragraph. — See Jonstonus did or did not.

† I should have been, if my friend had not cautioned me, misled by the title, and not by the content.

In the year 1710, Bernardin Ramazzini, principal professor of physic in the university of Padua, published a book for the use of Raynald, duke of Modena, entitled *De principum valetudine tuenda commentatio*. The health of a good prince, says he, is the greatest blessing imaginable to the public. And this he confirms by the example of the Romans, who fell into the utmost grief and consternation upon hearing that Germanicus was dangerously ill at Antioch; and presently, upon a sudden report that he grew better, ran with excess of joy into the Capitol, bursting the doors, and crying out, "Rome is safe, our country is happy, Germanicus lives!" But soon after, when they were assured that he was dead, gave way to their fury, broke down the temples of the gods, overturned their altars, and threw the guardian deities of Rome into the streets.

A prince who regards his health, continues he, should permit his physician to remind him of the following particulars.—

- 1, He should be put in mind of the annual changes of the seasons, that his clothes, palace, furniture, and method of living, may be adapted to them.
- 2, He should be advertised when any epidemical distemper begins to spread, that he may remove into a more healthy air.
- 3, As the variety of delicacies, which cover the tables of princes, is a great temptation to excess, they should be exhorted to partake of a moderate quantity of such things only as they know by experience to agree with their constitution.
- 4, Princes should not be fatigued with business soon after dinner, nor with any business at all after supper, but should follow the example of Augustus Cæsar, who would

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neither read nor write letters after supper, lest they should disturb his sleep.

5, It is shameful in a prince to be a drunkard, and thereby become the jest of the mob; as Claudius Tiberius Nero was, in derision, called Caldius Biberius Mero. Let princes imitate Julius Cæsar, who, as Suetonius informs us, *vini parcissimus fuit*; and Augustus, who rarely drank above three glasses after supper.

6, Manly exercises, suitable to their high rank, according to the custom of the country, and especially riding on horseback, should be recommended to princes. They should also indulge themselves in other innocent and genteel recreations, and never fail to admit young people to partake of their diversions.

7, The constitution of the prince should be carefully studied, and well understood by his physician: and his diet, exercise, and evacuations, ought to be regulated accordingly.

8, No man is ignorant of the bad effects which violent passions produce in the human body. Anger, fear, grief, and even excessive joy, have been the causes of death to many. And princes are so far from having any right of exemption from these passions, that they are generally more exposed to them than any of their subjects. "Let a man" read (says our author) the forty-fifth* chapter of the

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"seventh

* Pliny there mentions the vexations Augustus met with from his worthless associates, Lepidus and Mark Antony.—The necessity of concealing himself for three days in a ditch, after a defeat; seditions and mutinies in the army; hatred of banished citizens; snares laid to take his life away; treachery and wickedness of his own family and friends; pestilence and famine in Italy; a fixed resolution to die, in consequence of which he, fasted four days, whereby he was brought to death's door; and, at last, the mortification of leaving the son of his enemy his heir and successor to the empire.

“ seventh book of Pliny’s Natural history, and when he has
“ considered the many misfortunes, dangers, terrors, and
“ real calamities which Augustus encountered, let him ho-
“ nestly declare whether or not he envies that exalted ruler
“ of the world.” It should, therefore, be the physician’s
study to know what passions his prince is most prone to,
that, in the favourable moments of good humour, he may
respectfully recommend a diet and regimen proper to sub-
due those enormities.

NUMBER VII.

THE ART OF MEDICINE AMONG THE CHINESE.

It cannot be said that medicine has been neglected among the Chinese, for they have a great number of ancient authors who treat of it, having applied themselves thereto from the foundation of the empire.

But as they were very little versed in natural philosophy, and not at all in anatomy, so that they scarce knew the uses of the parts of the human body, and consequently were unacquainted with the causes of distempers, depending on a doubtful system of the structure of the human frame, it is no wonder they have not made the same progress in this science as our physicians in Europe.

However, the study of medicine has always been greatly esteemed by this nation: not only because it is useful for the preservation of life, and the recovery of health, but because they believe there is a close connection between it and the motions of the heavens.

There were formerly imperial schools for the improvement of medicine; but the physicians at present in greatest esteem, are those whose ancestors were physicians before them, and transmitted their knowledge from father to son.

But the only particulars mentioned by Du Halde, connected with our present subject, are contained in the following extracts.

CHAN SENG: OR, THE ART OF PROCURING
HEALTH AND LONG LIFE.

THOUGH Tyen hath numbered our days, and is the master of them, yet if taken rightly, it may be said he hath left them in our own disposal; for the supreme Tyen is no respecter of persons: nothing moves him but virtue; and whosoever practiseth it, hath within himself a sure evidence of his friendship. They then who would prolong their life must immediately study to be virtuous. A regular care of the body, supported by the constant practice of virtue, will make that constitution hail and strong, from whence will follow a long and happy life. Give me leave in this place to relate what happened to myself.

The blind fondness of a mother, who had not the resolution to contradict me in my infancy, but indulged my appetite in every thing, entirely ruined my constitution, and loaded me with infirmities. My father, who had already lost my two elder brothers, and who in an advanced age had no child but me, was inconsolable. He had applied to the most able physicians; but their medicines only increased my disorder. When there were no hopes of my recovery, my father said within himself, there is but one way left to save my son, and that is to do works of charity, which move the heart of Tyen: from that time he set himself upon building bridges, repairing highways, giving clothes to the poor, tea to travellers, and sending victuals to the prisoners, so that in one year's time he was at a considerable expence in these charitable works; nor was this in vain; it was visible that, without using any physic, I by little and little regained an healthy look, my stomach and
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my strength returned, and my father found me in a condition fit to apply myself to study ; he provided me an able master, and of a very mild temper suitable to my delicate constitution ; but my application to reading at length occasioned a very dangerous relapse, out of which I with great difficulty escaped. Then my father made me a choice collection of more than one hundred books of physic, and gave me orders to confine my study to that science. 'This,' said he, 'will do you service, and make you helpful to others.' I read those long treatises, but so far from learning to recover my strength thereby, that I perceived it grow less every day ; so I gave over physic, and bent my thoughts sincerely to practice virtue : I consulted with able persons, I perused also some books proper to my design, and adding my own reflections to what I had learnt, I framed for myself a regimen of life, which hath succeeded perfectly well with me ; for from a lean and infirm state, I in a few years found myself plump and sound ; and for one of my age I have a fresh colour, a body strong, and free from all indisposition, and see myself the head of a numerous family, which enjoy perfect health.

In short, among the many maxims which have been communicated to me in conversation, or which I have found in books, some not sufficiently warranted I rejected, others which were scarce intelligible I cleared up, and out of all I have formed to myself a plan of life, which hath established me in my present happy state : however confined my observations may be, yet I believe the world will be obliged to me for making them public, because they may be of use to preserve men from the infirmities so common in life, and to procure them, as I have done, an agreeable old age, without having my hearing, sight, or any other of my senses, impaired thereby.

These maxims may be reduced to four heads, which consist in the regulation of, 1. The heart and its affections; 2. The use of diet; 3. The business of the day; 4. Rest at night.

THE REGULATION OF THE HEART AND ITS
AFFECTIONS.

THE heart is in man what the roots are to the tree, and the spring to the river; it presides over the whole man, and as soon as the art of governing it is known, the faculties of the soul and the five senses are likewise under command; it ought therefore to be our first care to keep a guard over the desires and affections of the heart; and that your care may be attended with success—

1. *Employ not yourself in any thoughts and designs but what lead to virtue.* The principal duties of society are these,—fidelity to the supreme magistrate, obedience to parents, moderation and equity. Upon the practice of these virtues every one should, when he retires in order to make his evening reflections, seriously examine himself. Limit not your endeavours only to the perfecting yourself, but strive moreover to make your virtue beneficial and useful. Comes there then any thought into your head? are you about to say any thing? do you form any scheme in your mind? reflect upon it before hand, and ask yourself these questions:—Is what I think, what I am about to say or do, beneficial or injurious to others? If it be beneficial, speak or act, notwithstanding the difficulties that discourage you; if it be injurious, never allow yourself in such views, discourses or attempts.

Further, that you may keep from being surprised into the committing what is wrong, watch every moment over

your heart, descend often into yourself, and pardon yourself no fault. It is only by vigorous endeavours, especially at the beginning, that we improve in virtue. A man thus attentive and watchful over himself, though he must, according to the course of human affairs, be exposed to various accidents, yet he will find by experience the effects of a secret protection, which by unknown ways will preserve him from every misfortune.

II. *Keep peace in your heart.* When a man's heart is filled with agreeable views, and such as are agreeable for maintaining union in civil society, his thoughts shine forth in his countenance; his inward joy and serenity of mind sparkle in all the outer man, and every one perceives the true and solid sweetness and satisfaction which he tastes in the inmost recesses of his soul. This is what the ancients would have us understand by these figurative expressions: a serene sky, a fine sun, a gentle zephyr, charming clouds; inspire men, and even birds, with joy; on the other hand, gloomy weather, boisterous wind, heavy rain, violent thunder, and continual lightnings, terrify the very birds, who fly for shelter to the thickest woods. A wise man therefore should always appear with a countenance breathing that peace and tranquillity which he enjoys within himself.

It is a maxim, that violent passions, such as hatred, anger, sorrow, rend the heart. As it is no easy matter to live in society without frequent subjects of dispute and uneasiness, we ought to take prudent measures, and be upon our guard, against these enemies of our peace. Am I threatened with a troublesome affair, I meet the storm with a composed mind, and endeavour to quell it. Am I involved in it against my will, I labour to surmount it, without losing any thing of my usual freedom of temper. Have I taken wrong measures, I am not obstinate in justifying

fyng my proceedings. If to retrieve a misfortune, any one gives me dishonest counsel, I am so far from following it, that I do not give it the hearing. If in any affair there happens a disappointment which I could not prevent, I suit myself in some measure to it ; is it over ? I think no more of it. If a man, after having acted according to his knowledge, submits the event to the decrees of heaven, nothing can disturb the joy of his heart. On the contrary, if upon the bad issue of a rash undertaking, a man is obstinately bent upon making it succeed, if he revolves in his mind a thousand useless projects, and gives up himself to the violent motions of anger, he kindles a fire in his bowels which consumes them, his lungs are as it were burnt up, the blood and humours altered and put into an unnatural ferment, the corrupt phlegm drowns the internals, and the habit of the body being thus disordered, visibly wastes away. Were those physicians, Lu and Lyen, to come again into the world, they could not, with all their skill, and with the assistance of vegetables and minerals, repair the radical moisture already destroyed ; hence comes that saying, ‘ that if the excesses of debauchery make great havoc in the body, the vexation and pain of the mind makes still greater.’

I observe in particular, three great disorders of the body which are caused by anger and sorrow.

1. The liver is hurt, and by this means the active principles of the blood, the source of the vital spirits, are not secreted but remain blended together. Sometimes the liver communicates its disorder by consent of parts to the pleura, which degenerates into a tumour and universal inflammation.

2. The lungs are damaged ; whence it happens that the blood, and the air that is taken in, endeavouring to find a passage

passage where obstructed, an irritation ensues, thence a spitting of blood, which at last ends in a confirmed consumption.

3. The stomach is spoiled, and consequently the lymph of its glands, whence proceeds the fermentation proper for digestion, becomes viscous, and loses its virtue with its natural fluidity; this destroys the appetite, till at last the stomach is disabled from receiving nourishment. The oesophagus, or gullet, is seized with a sort of palsy, which prevents it from laying hold of, and thrusting forward the food towards the mouth of the stomach, which turns and rises at the least approach of it.

Such are the fatal effects of violent passions. When a heart is habitually possessed by them, what help can a man hope for, and of whom can he complain but of himself?

III. Reflect often upon the happiness of your condition. He is happy who understands his happiness; and yet how many do we see who have not a contented mind amidst the greatest prosperity? They are unhappy, because they will be so. The empire is in peace; the year is fruitful; see the great felicity which Tien hath freely given us: If I lead an easy and quiet life at home, what have I more to wish for? That I may the better relish my happiness, I often consider that I live at ease in my house, whilst so many travellers have the inconveniencies of wind, dust, and rain, to undergo; or sail upon rivers or lakes in the height of a storm, which raises mountains of water, ready to swallow them up every moment; whilst so many sick are confined to their beds, and feel the acutest pains, without finding ease from medicines; whilst so many unfortunate persons are under unjust prosecutions, or languish in a prison, destitute of friends, suffering hunger, thirst, cold, and many other miseries inseparable from their confinement; whilst so many families
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are in mourning for the death of their nearest relations, or undone by a fire, or some other like accident ; and whilst many others seek to end their miseries with their lives, by violent means. When I compare myself with these unhappy persons, and see myself free from the evils with which they are surrounded, cannot I be content with my lot ?

He who never met with crosses knows not the value of a quiet life. Those which I have experienced are now of great use to me ; for besides the two great fits of sickness already mentioned, which had brought me through much pain to the gates of death, I very narrowly escaped shipwreck. When a disappointment befalls me, I make myself easy by thus reasoning with myself.—Is there any thing in this affair comparable to any one of those trials which I have already gone through ? Did we recur to the same remedy in affliction, we should learn from our own experience, that it is in our power, with a little reflection, to make a good use of that portion of happiness which Tyen hath given us. On the contrary, he who sets no bounds to his desires, were he to acquire the riches and glory of an empire, would still think he wanted every thing. Let us consider that our powers are limited ; let not then our desires be unbounded ; let us take things as they come ; and especially be careful not to give up ourselves to continual solicitude and anxiety, which will rob us of the most valuable moments of life.

The celebrated Yen, my countrymen, had a fine maxim —“ If,” said he, “ your state of life be mended, think less upon what you have not than upon what you have ; otherwise you will be always desiring, and will never see your desires satisfied. If you fall below your former condition, say thus to yourself : what is left is sufficient ; my substance

may be taken from me, but none shall rob me of the tranquillity of my heart, which is the greatest of all goods." with such sentiments, notwithstanding the decrease of your fortune, you will be richer than you imagine. This is the moral of that ancient fable. Seeing a gentleman before me on a fine horse, while I was mounted upon an ass;—Ah ! said I to myself, how different is my condition from his ! but, upon turning my head, I saw a good likely countryman driving a heavy wheelbarrow ; O then ! said I, if I am not his equal who goes before me, at least I am much his better who follows me. This fable is sufficient, on some occasions, to revive my spirits. I have wrote it on a scroll, and set it up in my study, that I may still call it to mind.

iv. When you enjoy a good state of health, know the value of it, and study to preserve it. Diseases and infirmities are the lot of man, and it is difficult for him to be entirely free from them. The slighter ones embitter life, by their variety and continuance ; the greater are attended with fears and apprehensions. Every part of life is subject to misery. Infancy is, if I may so express myself, condemned to cries and wailings ; manhood and old age are exposed to the long absence of a family, to changes of fortune, and to grievous distempers. We see others who have much more reason to complain ; such as are born or become deaf, blind, dumb, half paralytic, cripples, and those who have lost the use of all their limbs. I have already told you what I suffered from a complication of distempers. I have rid myself of them, and now enjoy a sound and vigorous health ; I have my hearing quick, my sight clear, a good appetite, and a cheerful temper. Another may acquire firm health as well as I ; but when it is once obtained, he should know how to preserve it,

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One of the best means is, to resist that natural propensity which we have to sensual pleasures, and to use very moderately even the allowable. An old man, who feels himself as lively and eager after pleasures as if he was in the vigour of his age, should learn to restrain himself by the following reflections:—After the fiftieth year, man is in his decline; the blood begins to run weak, the spirits fail, and feeble old age is not far off. Though a man could promise himself to live an hundred years, is that so long a term? and will he not soon be at the end of that race? But are there many who arrive at an hundred years? Our life is so short, that we ought to avoid every excess that may make it yet shorter. Do we not perceive that our end draws nigh, when, in reading, the eyes are subject to dazzlings; when the feet stagger with walking; when, after meals, the nourishment loads the stomach; when, after having spoke some time together, we find ourselves out of breath? does not all this teach us, that we are not young, and that we must bid adieu to pleasures, which will quickly consume the weak remains of health, which it is of so great moment to husband for the preservation of life! The lamp, says the proverb, goes out when the oil is spent: more oil may be added to the lamp, as the flame wastes it; but if the radical moisture of the body be once consumed, have we any means to repair that loss? This requires serious reflection.

THE REGULATION OF DIET.

WE must eat and drink to support the body. The nourishment which we take, if it be well regulated, keeps the stomach in a situation agreeable to it. The stomach is the concocter and digester of food, the first source of the blood, vital spirits, juices and humours dispersed into the different parts of the body, to maintain their natural vigour. He, therefore, who regards his health, ought to be very exact in observing certain rules relating to eating and drinking.

I. Let hunger, and the want you feel within, regulate your food, and take great care that you do not offend in quantity. Excessive eating hurts the vital spirits, and fatigues the stomach. The vitiated chyle, carried into the mass of blood, makes it thick, and unapt to a spiritous fermentation. For the same reason, never think of drinking but when you are dry; quench your thirst without excess. Too much drink damages the blood, and fills the stomach with wind, by precipitating the indigested chyle; ropy wine occasions wind in the fermentation, whence follows an inflation.

II. Breakfast early. The air is drawn in by the nostrils, and the juices of the earth by the mouth, the exhalations of which we take in. It greatly concerns us never to go out of doors fasting; this caution is especially necessary in epidemical distempers, or in going among sick people. In winter, a glass or two of wine is an excellent preservative against unwholesome air. It is good to take some food, but in a small quantity, which serves to employ and settle the stomach, and is a sort of cordial. In summer, it prevents injuries from bad air, and keeps off colics, vomitings, dysenteries, &c. In winter, it fortifies against severe cold
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and noisome fogs. In spring, it is of great virtue against high winds, the *sercin*, (an unwholesome vapour that falls after sunset in hot countries), and dews, so frequent and plentiful in that season.

I rise very early; and before I have either washed my face, or cleansed my mouth, I swallow a porringer of rice gruel, taking a little of the rice. Barley or rice gruel are agreeable to the stomach, and to very good purpose moisten the ferment inclosed in it. For want of rice gruel, I use warm water, sweetened with a little powdered sugar.

III. *Make an hearty meal about noon*, on the plainest meats, which are most wholesome and nourishing. Suffer not some sorts of ragouts, which are invented only to provoke or please the appetite, to come on your table. There are five sorts of high sauces, and each of them, if frequently used, hath unwholesome qualities: Meats too salt offend the heart; too sour, the stomach; too bitter, the lungs; too poignant, the liver, by their tartness; too sweet, the reins. But what is most to be avoided in seasoning, is too much salt. Salt slackens the motion of the blood, and occasions a difficulty of breathing. Salted water flung into the blood of a creature just killed, immediately curdles it. Hence, they whose common food is salt meats, have a pale complexion, a slow pulse, and are full of corrupt humours.

Accustom yourself therefore to the simplest food; it will preserve you from many diseases, and keep you in perfect health. But take care to eat your meat hot; never eat cold meat, especially when it is fat. This sort of food, by staying too long in the stomach, will produce crudities, which occasion gripes, a diarrhœa, and such like disorders.

iv. *Eat slowly, and chew your meat well.*

1. This slow chewing breaks the food in pieces, mixes it with the saliva, reduces it to a proper fineness, which is the first dissolution, and fits it for the fermentation of the stomach.

2. The digestion thus begun by the teeth, and by the help of the saliva, is easily perfected by the ferment of the stomach.

3. Thus we escape many accidents, which befall such as eat hastily; such as coughs, hiccups, and the *itff*, that is, an irritation of the gullet, which is sometimes mortal.

What can be at once more disagreeable and ridiculous, than to see a man catch his meat as a tiger seizes his prey, to eat in a hurry, cramming his mouth incessantly with both hands, as if he was fighting for it, or feared it should be snatched from him?

v. *Do not so far gratify your appetite, as to rise from table quite satiated.* A large quantity of food disturbs the stomach, and hurts digestion. Though you have, at the same time, a strong stomach, and which easily digests its food, do not employ its whole strength, but keep some of it in reserve. I will explain my meaning by a similitude: A man who can lift or carry an hundred weight, if loaded with only fourscore, is not much fatigued; but lay on him a load much heavier, his too-extended nerves will feel the weight, his bones will not bear up under it, and, after a few steps, he will stagger and fall backwards. The application is easy. When we are accustomed to a sober life, the use of meats is much more beneficial. In short, it is by long suffering of hunger and thirst that we should learn moderation. The satisfying to the full the demands of either, is the ready way to expose us to certain sickness;

because neither the animal nor vital spirits will be sufficient for their functions.

VI. *Sup betimes, and sparingly.* It is better to eat oftener, if there be a necessity. It is usual, in summer, in the fifth and sixth moons, when the days are longest, to make four meals; the first at early rising, the second at eleven, the third towards sunset, and the fourth just before bedtime. In the other seasons of the year, three meals are enough. I would have every one determine, as near as may be, the quantity of rice and other food to be taken at one meal, agreeably to his constitution and way of life; and that he should keep to that rule, making it a law to himself never to transgress it, unless on some occasions, when the victuals please the palate, and give an inclination to take more than ordinary; but this temperance is most necessary at supper, which ought to be very light.

Generally speaking, eat no meats which are hard of digestion; such as those whose substance is glewy and viscous. Abstain from meats half raw or very fat; those that are cooked up with rich sauces; from high seasoned ragouts, which carry fire into the bowels; from new corn, which men are fond of eating at its first coming, and which is not wholesome till it is come to maturity, by insensible fermentation, and evaporating its plenteous volatile and pungent salts. This advice chiefly regards old persons, and those of a weak stomach.

VII. *Take care that your food be tender, and thoroughly dressed;* for if it be hard, and not easily chewed, the stomach will with difficulty digest it. Flesh that is tough, fibrous, or half dressed, is very hard of digestion. When a man is in the strength and vigour of his age, when the blood hath all its fire, and the stomach is strong, he will suffer less inconvenience from such kind of food; but it will

will infallibly make him sick, if he be of a weak stomach, or advanced in years. As for my own part, I give orders that the rice, flesh, fish, roots, herbs, and in general every thing that is brought to my table, be thoroughly done, and very tender, otherwise I would not touch it.

VIII. *Sleep not till two hours after your meals.* The food which passes by the gullet into the stomach should be ground and dissolved there, that it may be able to circulate; be filtrated, and assimilated. Sleep taken immediately after supper deprives the stomach of the liberty of acting upon the aliments, which not being sufficiently attenuated, stagnate there, causing crudities, sour belchings, and often a lenter, and confirmed diarrhoea. If this continues for some time, there appears a wanness in the face, and the body becomes languishing, feeble, and bloated. The digestion being thus hindered by unseasonable sleep, chylication is obstructed, and the vitiated chyle being dispersed, by the circular motion, into all the bowels, and stopt there by its thickness, becomes more and more coagulated by its depraved acid, which is the source of a multitude of distempers, from the obstructions which happen in the glands. I advise, then, walking a while after meals. This gentle motion facilitates digestion. Take care, also, that you do not eat immediately after a violent fit of anger. Anger causes an effervescence in the juices that are strained through the salivary glands; the saliva, with its noxious ferment, goes into the stomach, infects the chyle, and corrupts the mass of blood.

IX. *Begin your meal with drinking a little tea.* It moistens the throat and stomach, and preserves the radical heat and moisture from rude attacks. Close also your meal with a cup of tea, to wash your mouth and teeth; it is a method which will fasten them, and preserve them even to old

age. I do not advise drinking much either of tea or any other liquor. The stomach does not like to be too moist; a little dryness and heat put it in a condition most suitable to its functions. I freely own I do not love tea; and when I am obliged to drink it, I perceive my stomach nauseates it. The weakness of my constitution in youth may have contributed to this aversion. I do not distinguish even the best tea from the worst. This sometimes draws upon me the raillery of my friends; but I in my turn laugh at their niceness, and please myself with my insensibility.

But it is a common saying, he who does not love tea, covets wine. (The Chinese, as I have observed, make their wine of distilled rice, and it is very strong.) I do indeed drink wine; but I never take more than four or five small glasses: more than that would give shortness of breath, a dizziness, sickness at stomach, and next day I should be like one expecting a fit of sickness. Wine, moderately taken, refreshes drooping nature, revives its forces, and gives to the blood and pulse their natural vivacity; but drunk to excess, it produces windy fermentations, obstructions in the reins, and fouls the stomach.

Nothing appears to me either more shameful, or more unworthy reasonable men, than the contending at a feast who shall drink most bumpers, or shall soonest empty his bottle. For my part, when I entertain my friends, I invite them cheerfully to drink two or three glasses to put them in good humour; but I stop there, without pressing them farther, or insisting on compliances which would destroy their health: these are my maxims in diet; they are easy; and if they are practised, I am sure they will be found beneficial.

THE

THE REGULATION OF THE ACTIONS OF THE DAY.

IN the common actions of life, we are attentive enough to great matters, which give a visible blow to health; but there are many small ones which are looked upon as trifles, and thought below notice: and yet due care with regard to these trifles may keep us from many inconveniencies, and a contrary conduct shorten the term of years which Tyen designed us.

In general, our life depends upon the regular motion of the spirits: of these there are three sorts, the vital which we call *tsing*; the animal, which we call *ki*; and a third degree of spirits, much more noble, more free from matter, and to which the name of spirit does much better agree, which are called *shin*.

The vital spirits produce the animal, and of both these is begotten a third degree of spirits designed for intellectual operations. If the vital spirits happen to fail, the animal must unavoidably droop; and this second sort of spirit being exhausted, the third cannot subsist, and the man must die. It concerns us therefore not idly to waste these three principles of life, either by an immoderate use of sensual pleasures, or by violent labour, or by too intense and constant application of the mind.*

1. The

* What the Chinese author here says, agrees well enough with the sentiments of a modern writer. Thus the latter expresses himself, and it will serve as an illustration. 'All the springs' says he 'of a human body would be useless and unactive, if God had not produced and appointed the vital spirits, to make them act, and to imprint on them a lively motion; and the animal spirits to put the internal and external senses in exercise: so he has disposed, as the general instrument of the vegetative soul in the

1. The most important advice, which I can give, for maintaining the body in a due temperament, is to be very moderate in the use of the pleasures of sense; for all excess weakens the spirits. Do not labour to discover what is out of the reach of your sight, and you will preserve the liver in good order; hearken not after any thing with a too earnest attentiveness, and your kidneys will be sound; abstain from too much and too frequent spitting and spawling, and your lungs will be well; undertake not very curious and fine works, and the heart will keep its force and vigour: when you have suffered hunger, don't immediately eat much; and above all, keep from food

animal, the arterial blood, which is also called the vital spirit, when it hath been warmed and purified in the heart. The animal spirits are much superior to the vital, as they are the instrument of a more noble life. 1. The particles which compose the animal spirits are much smaller, and more subtle, than those which compose the vital. 2. The particles of the animal spirits move in every sense separately as the particles of air; this is the Chinese *ki*. The particles of the vital spirits keep gliding one over another as the parts of water; this is the Chinese *ying*. 3. The particles of the animal spirits are so rapid, that they are imperceptible to all the senses; and the finest part of these spirits is called *shin*. The operations of growth, nourishment, &c. are vital operations, and ascribed to the Chinese *ying*. Those of perception, both by the internal and external senses, are animal operations. The animal spirits, according to the ancients, are nothing but a subtle air, a very fine breath, exactly answering to the *ki*. It is a composition of small bodies, in a brisk and continual motion, like those particles which make the flame of a lighted torch, these spirits according to the moderns, are nothing but a subtle humour, which flows from the brain into the nerves with such impetuous force, that, if opened, they are very difficult to be stoppt. The author I quote, means by the animal spirits, a pure and subtle breath, which answers to the Chinese *ki*; and, moreover, a flame finer than that of aquavitz, which is the Chinese *shin*.

food of a crude and cold nature, lest the stomach should suffer by it : this regards the internal parts.

As to external actions ; walk not too long at once, for your nerves will be fatigued by it ; stand not for hours together in one posture, for the bones will hardly support you ; sit not too long, the flesh will suffer by it ; lie not down more than is necessary, for thereby the blood will be less fluid, and it will have more difficulty to pass through the veins.

In different seasons there are also rules to be observed to defend yourself from too great heats and colds : in winter keep not yourself too hot, nor in summer too cold. My maxim is to prevent in time all sorts of distempers, and to take precautions against their weakest attacks.

II. As soon as you are awake, rub over your breast, where the heart lies, with your hand several times, lest, coming warm out of bed, the cool air should seize you on a sudden, and stop the pores of the body, which would occasion rheums, and other inconveniencies ; whereas a few frictions with the palm of the hand put the blood in motion at its source, and prevent from many accidents : in washing your face, as soon as you are out of bed, keep your eyes shut, lest the salts of the gum of the eyes, and the sweat, entering with the water there, fret, and at length produce a serous inflammation.

III. As of all the passions which ruffle us, anger does the most mischief, so of all the unwholesome affections of the air, wind is the most dangerous, especially when it comes through any narrow passage, is cold and piercing, and surprises us unawares ; it insinuates into the body, penetrates the nerves and arteries, and often causes the torturing pains of the gout, palsy, and such like grievous diseases. The ancient proverb, therefore, ad-

vifes us to avoid a blaſt of wind as carefully as the point of an arrow. Likewise, after hot bathing, or hard labour, when the body is in a ſweat, by no means leave of any of your clothes, nor expoſe yourſelf to the freſh air; for this light reſreſhment may coſt you dear. The cold air cloſes the pores, and thence comes a gathering of ill humours, which would have found vent this way, either by ſenſible ſweat, or inſenſible perſpiration, eſpecially at the feet, the back, and belly, which ſhould not feel the cold. Therefore, even in ſummer, when we wear very thin cloaths, it is proper to cover the lower belly with a large cotton cloth, to preſerve it from colical diſorders, which ſudden cold would occaſion there. I know the remedy in this caſe is ſudorifics; but though they cure the preſent diſorder, they weaken the maſs of blood, and alter its fermentation, when ſimilar and heterogeneous particles are evacuated promiſcuouſly.

iv. In the fourth and fifth moons, May and June, if there be long and continued rains, as it happens in ſome ſouthern provinces, the dampneſs of houſes ſhould be remedied by burning odoriferous herbs in them, or wood well dried, and which makes a clear fire. He who ſits or lies down in a moiſt place is in danger of a fit of the palsy, or at leaſt a very obſtinate flux. In ſultry weather, when you ſweat much, ſhift your linen frequently, but do not put on what hath been juſt dried in the ſun.

v. When the juice is ſqueezed out of the canes, don't burn the wood and huſks under your eyes, that ſort of fire having the malignant quality of clouding the ſight. You will find the ſame inconvenience by burning train oil inſtead of common oil. Muſk, and the bloſſoms of young oranges, contain imperceptible inſects; therefore do not put your noſe to them, leſt theſe ſmall vermin get up

to

to the brain. The air is full of imperceptible eggs of various small insects, which we suck into the stomach with our breath; but they cannot be hatched there, for want of a fit medium; whereas the insects which lay their little eggs in the mealy cup of flowers, may be drawn up by the nose, with a ferment proper to hatch them.

VI. During the three spring months, when nature is on all sides in a ferment, we should conform ourselves to it: to this end, we should stir about, and walk, that the limbs may be more pliant; for a sedentary and unactive life are at this season directly contrary to health. If there should be some warm days, don't leave off your winter clothes too soon, nor all at once, but by degrees, lest you should be surprised with sudden cold weather, which in that season very commonly succeeds heat.

VII. In summer, the spirits in the body are much spent, the reins are weakened, the radical moisture is wasted, and, if I may use the expression, evaporates in water and sweat. At this time, we ought to take our meat a little warm, and adapted to procure a moderate heat within. If, after violent exercise, you drink what is warm, and capable of raising a sweat, let it take its course, and be not so ill advised as to stop it, by throwing off your clothes, much less by wiping it off as fast as it rises, or with a wet cloth; nor is it good while you sweat to fan yourself.

VIII. During the three winter months, when the waters have not their free course, the blood in our veins becomes slow, heavy, and apt to turn sour. The vessels being too full for want of perspiration, this fullness hinders the free motion of the fluids, and makes it too slow; besides, the air being full of nitre, which is drawn in by the breath, carries into the mass of blood stimulating particles,

ticles, by which the chyle is clogged, and contracts an acidity. It is therefore necessary to redouble your care to maintain the natural heat, and vital spirits; do not then, during that season, stir out of doors, but upon great necessity; keep yourself warm within, and rise not too early, lest you be pinched by the first cold of the white frosts. Wear clothes fit to keep you warm, but do not load yourself with fur. Don't hover continually over a fire, which may cause a violent inward fermentation, enough to give you a fever. Especially, be advised to wear a double girdle, about four or five inches broad; for the heat which that keeps up in the reins, warms the rest of the body.

IX. In travelling, if you go by water, as it is not easy to provide, rise in the morning, furnish yourself beforehand with some pills of *ti wbang*, and as soon as you awake swallow three or four drams of them in a cup of warm water. These pills are called *ti wbang*, because the *ti wbang* is the principal of its five small ingredients; but for want of these pills you may take the *ti wbang* by itself.

If, in travelling by land, you cross mountains burnt up by the sun, though ever so dry, do not drink of spring or river water on which the sun shines; for, besides that it hath at that time pernicious qualities, it is often full of the spawn of innumerable insects.

If you travel in the midst of winter, and your feet are frozen, as soon as you come into your inn, order some water to be brought just lukewarm, and bathe your feet and hands with it, rubbing them gently to soften them, and to recal the natural heat into the veins and arteries. After that first operation, you run no risk in washing them in ever so hot water; but if, neglecting that precaution,
you

you plunge your feet all at once into boiling water, the frozen blood coagulates, the nerves and arteries will be hurt by it, and you are in danger of being lame ever after. In like manner, when you come in benumbed with cold, it is not wholesome presently to drink any thing hot, but stay half an hour before you drink.*

THE

* The *ti wubang* is nothing else but the root of the *great comfrey*. The best grows in the province of *Ho nan*, about the city of *Whay king*, whence it is called *wubay king ti wubang*. These roots, when dry, are as big as one's thumb, and a great deal longer. This root has excellent properties; much is ascribed to its virtues in Europe, much more in *China*. A Chinese physician, who is a christian, affirms, that the richer sort, who regard their health, take every morning some small pills of *ti wubang*, just as we see many in *Europe* drink coffee or chocolate. Some cut this root into little slices, and boil it, or else distil it in *balneo maria*; others bruise it, make it up into a bolus, and swallow it in warm water. It is usually compounded with five ingredients, *viz.* aromatics, cordials, diuretics, gentle sudorifics, and weak acids, the better to quicken and convey to the viscera the virtue of the *ti wubang*, which always predominates in these pills. Of these ingredients the principal is *fu lin*. You must not confound this root with the *tu fu lin*, which is the *esquina* or *China* root. The *tu fu lin* is very common in *China*, and exceeding cheap. The *fu lin*, which is very much esteemed, and is very dear, tastes sweet, is of a temperate quality, and has nothing hurtful in it, or that needs a corrective. It is a good remedy in diseases of the liver and stomach, in the dropsy and asthma. What there is of heat in it helps to cut the phlegm that annoys the mouth and throat, and disperse windiness in the stomach and sides; moreover, it appeases grief of heart, and the violent disorders which arise in the mind by an excess of sorrow or fear; it relieves the great dryness of the mouth and tongue; it hath the double virtue of curing a violent flux and a stoppage of urine; it stays immoderate vomitings and convulsions in children; and, by strengthening the kidneys, disposes women with child for an easy labour. No vinegar nor acid meats must be taken while this medicine is used. It may perhaps be asked, what sort of shrub grows from the *fu lin*, of what figure are its leaves, flower, and fruit? The Chinese herbalist, who never fails to take notice of these particulars

THE REGULATIONS FOR REST AT NIGHT.

I SHALL take notice of particulars, which may appear of little importance, and perhaps be treated as trifles; but

particulars in treating of plants, does not ascribe to the *fu lin* either stalk, or leaves, or flowers; which gives room to conjecture that it ought to be placed in the class of truffles. There is good *fu lin* to be met with in the province of *Sben si*; and there is since found better in the province of *Tun nan*, which only is used at court, where a pound of it is sold for a tael. A merchant, says Father Dentrecolles, brought me one of these roots a foot long, but not so thick in proportion, and as broad as one's hand, which weighed three pounds: I believe that the reddish bark which covered the white substance considerably increased the weight of it. The *fu lin* grows also in the province of *Che kyang*, and is used in the southern provinces, where it bears a good price; but is not comparable to that of *Tun nan*. A learned physician gives this reason for it, *viz.* the *fu lin* of *Che kyang*, being of a spongy substance, hath less body and strength than that of *Tun nan*, and cannot resist the sharp and nitrous air of *Pe king*; on the contrary, the *fu lin* of *Tun nan* and *Sben si* is solid, has few pores, and is very ponderous. This difference of texture, according to the remarks of a *Chinese* author, comes from hence, that the mountain pines, such as those of *Sben si* and *Tun nan*, are of a more solid substance than those which grow by or near the sea. But it may be said, to what purpose do you here speak of pines? This is the reason of it, and it confirms the conjecture already made concerning the nature of the *fu lin*: the *Chinese* herbalist, says Father Dentrecolles, affirms, 1. That the good *fu lin* is found under ground, upon mountains or in valleys, near those places where old pines have been cut: 2. That it is formed and receives its growth from a very spiritous substance communicated from those pines, and spreading in the soil; upon which account I have been of opinion, that the *fu lin* might be formed and grow in the same manner as truffles, which are not fastened to the earth by any perceptible root. Perhaps the *fu lin* is a sort of fungus, from the great roots of pines which have been cut, whose nutritious juice, kept in the earth, runs to a mass, and produces that substance,

but experience has convinced me, that these very things, insignificant as they seem, are not to be neglected; since, by observing them, they contribute to the preservation of health.

1. As there remains, in the evening, in the mouth and between the teeth, an unwholesome filth from the food of the day, or foul vapours from the entrails, before you

go

stance, which is at first soft, and more or less spongy in proportion to the fatness of the pine. The *fu lin*, which I have had in my hands, seemed to me to have had no roots to connect it to those of the pine; and books say nothing of them. Now, did it firmly cohere to the roots of the felled pine, it might be considered as a sort of misletoe of those roots, just as the pine hath misletoe on the outside, which is not fastened to it by any fibre, though it be nourished by it. These are the conjectures of this father, which will perhaps put us on searching in Europe after the *fu lin*, on the mountains whence pines have been long since cut. The same physician, adds Father Dentrecolles, having assured me that the *fu lin* is planted and cultivated, I then thought myself mistaken in my conjecture of placing it in the class of Truffles; but when he told me that he did not think it had a stalk and leaves when planted, I returned to my first opinion; for having read in the dictionary of the academy, that there are places whither they transplant small truffles, to make them larger, and that, being transplanted, they shoot neither stalk, branches, nor leaves, it seemed to me possible to be thus with the planted and cultivated *fu lin*. Here are two observations to be made, which I ought not to omit; the first is, that the *fu lin* is prepared for use, by taking off the rind, which is useless, and slightly boiling the inner substance; the second is, that, according to the Chinese herbalist, to find the good *fu lin*, whose substance is solid and close, such as comes from *Yun nan*, you must search for it about six foot round the great pines, digging six or seven feet deep. It is pretended, that from the place where it is found, there arises a fine vapour, which the skilful distinguish by the eye. The good *fu lin* has this property peculiar to itself, that it lies in the ground without rotting, or damage by worms; and the longer it lies, the more it grows, and the better it is.

go to bed, rinse your mouth well with water, or with tea, lukewarm, and rub your teeth with a soft pliant brush, to keep them clean. You will then feel, in the mouth and upon the tongue, an agreeable freshness. This practice will seem a little troublesome, but it will be only at first; for after a few days you will find pleasure in it, and if, by forgetfulness, or any other accident, you omit it, you will not be easy.

II. The middle of the sole of the foot is as the outlet and opening of a great many sources of the spirits dispersed all over the body; the veins and arteries which end there, are like the mouths of rivers, which must be kept open, otherwise they are oppressed and overflow. The fuliginous vapours of the blood are carried off by insensible perspiration; and as vicious humours discharge themselves upon the legs, some way must be opened to facilitate that perspiration. It is a healthy custom, when you are undressed, and ready for the bed, to take your foot in one hand, and with the other smartly rub the bottom of it as long as you can, and till you feel there a great heat; then rub separately every toe till you are weary. This is an effectual method for preserving and repairing the vital and animal spirits.*

III.

* What is here recommended, I have seen practised, says P. Dentrecolles, by an English gentleman, on board whose ship I was. He used every night to have his feet rubbed by one of his servants, following probably an English prescription, which in this agrees with our author's maxim. The European physicians advise plaisters to the soles of the feet, to allay burnings of a fever attended with deliriousness, and to mitigate the sharp pains of the cholera. This makes it credible, that the practice recommended by our Chinese author might be useful to such as would submit to it.

III. Before you lie down, do not amuse yourself with things that shock the imagination, and leave impressions which may disturb your rest; such as apparitions of spirits, monstrous births, strange feats of legerdemain, or tragical stories. These render your sleep unquiet, which will interrupt the elaboration of the spirits, and stop perspiration, so necessary to health.

IV. As soon as you are in bed, you should lull the heart to sleep; I mean, you should compose it, and cast aside every thought which may banish sleep. Lie upon either side, bend your knees a little, and sleep in that posture, which will prevent the dissipation of the vital and animal spirits, and keep the heart in good case. Every time you awake, stretch yourself in bed. This will render the course of the spirits, and the circulation of the blood, more free. Sleep not in the posture of a dead man, says Confucius; that is, lie not on your back. Let not your hands rest upon your breast or heart, and then you will have no frightful dreams, or fancy that some *yen*, or evil spirit, oppresses you, and holds you, as it were, benumbed, so that you cannot help yourself, by shaking or changing posture.

V. When once you are in bed, keep silence, and refrain from all talking. Of the internals, the lungs are the tenderest, which are placed above the others, and serve for respiration, and formation of the voice: when, therefore, you are laid down in a proper posture, they incline to and rest upon the side; whereas, if you talk, you force the lungs to raise themselves in part, and, by strongly heaving, they shake all the other noble internal parts. A comparison will help to make you understand me.—The voice, which comes from the lungs, is like the sound from a bell; if the bell be not hung, you damage it

it by striking it to make it sound. It is said, that Confucius made it a law to himself not to speak after he was in bed, no doubt for this reason.*

VI. Sleep with your head and face uncovered, that you may breathe more purely and freely. Accustom yourself to sleep with the mouth shut; nothing tends more to preserve the radical moisture, which vanishes and evaporates through an open mouth. The least inconvenience that can happen from it, is an early loss of teeth; for the air, by continually passing in and out between them, hurts, and by degrees loosens them. Besides, one is liable to draw in gross particles or malignant influences, which, passing through the mouth, insinuate into the body, infect the blood, and give rise to various distempers.

VII. Sleep not on the skins of tigers or leopards. If the hairs of these creatures enter never so little into the flesh, you will find how venomous they are. Neither sleep in the air, on the dew, upon cold stones, or in a damp place, nor even upon beds or chairs that are varnished. Such indiscretion will occasion palsies, ringworms, and cold distempers. It is also dangerous to rest

* This author reasons according to his slender notions of anatomy; for it is plain he knew but little of the structure of the lungs, the separation of its lobes, and how easy it changes its figure. He is ignorant also of the office of the midriff, which is the active instrument of respiration; since, by contracting its muscles, it admits the air into the lungs, and expels it, by relaxing them. Would he have those dumb who, by mere weakness, or in extreme old age, are confined to their beds for whole years? He seeks too much for mystery in the silence which Confucius kept at night: he then forbore to talk with his disciples, probably because he had discoursed enough with them in the day, and wanted rest.

rest ones self in chairs, or on stones, heated by the sun. A malignant heat might insinuate into the body, fix the humours in some one place, and cause an abscess there.

Thus you have a summary of the precepts which the Chinese physician gives to preserve health, and to prolong life to extreme old age. We may no doubt be surprised to find the Chinese (who are so little versed in the science of anatomy, which is the most important part of physic, for discovering the causes of diseases) reasoning as if they understood it. They supply what is wanting in this part by experience, and by their skill in determining by the pulse the disposition of the inward parts, in order to restore them to their natural state by proper medicines. And, when all is done, no more sick persons die under their hands, than do under those of the most able physicians in Europe.

Upon the whole, the personal experience of a physician, who knew how to recover his own health, which was ruined in his childhood, ought, methinks, to give weight to those means which he tried. Yet I doubt whether the rules he prescribes will be as well approved in Europe as they are in China.

THE MEANS OF HAPPINESS.

THE way to live happy, is not to be perplexed with too many cares; and happiness in one's station is the way to enjoy a long life. One man, by too much activity, loses what another gains by being entirely master of himself.

CAUSES OF LONG LIFE.

THE care of inculcating virtue upon your children will recommend you and your family a great deal more than the finest buildings can. It is a common, but an ill founded, opinion, that the northern climate is a great deal better than the southern provinces, and that the inhabitants of the former live much longer, and in greater plenty, than those of the latter. This long and happy life ought not to be attributed to the goodness of the climate, but to the wise conduct of the inhabitants.

To convince you of this, let us enter into a small detail. In the northern provinces, the richest ladies give suck to their own children themselves, and don't seek for any nurses upon whom they may devolve that care; but in the southern provinces, women of the most ordinary rank hire strange nurses, at a very dear rate. In the northern provinces, they who have lands, cultivate them with their own hands; or at least they look over the cultivation of them, sparing neither fatigue nor care. In the hot countries, they farm their lands out, and live quietly upon their rents, breeding up their children in so much idleness, that they don't so much as know a waggon, and can scarce distinguish the five sorts of grain necessary to the subsistence of life. In the north, wives and maids are at no expence for paint, which they seldom or never use; their clothes are of homespun stuff, and the ornaments of their heads are very modest. It is otherwise with the southern countries, where the women must have gold, pearls, and bodkins for their hair, set with diamonds, in order to dress themselves. If in one family there are wives, daughters, daughters and sisters-in-law, what expence does this single article require!

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If an entertainment is prepared in the northern countries, it consists of pigs, sheep, pullets, ducks, pulse, and fruits growing upon the spot; and these entertainments are very seldom made, and never but upon extraordinary occasions. But in the southern provinces, they are treating their friends every moment with these kinds of entertainments, and the house resounds with the noise of the music and the sounds of the instruments. An hundred sorts of precious furniture are exposed to the eyes of the guest; and the services are composed of the fruits of the four seasons, and the meat of every province.

AN ENCOMIUM UPON TEMPERANCE.

OUR longest-lived emperors were * Han vû ti, Lyang vû ti, and Song kau tsong; the first living 70, and the other two upwards of 80 years. The maxim of Han vû ti was, that temperance was the best physic. Lyang vû ti said of himself, that he had lain thirty years in an apartment separate from his wives. As for Song kau tsong, though he was naturally of a strong constitution, yet he was always very moderate in his use of pleasures, and master of his passions.

UPON THE SAME SUBJECT.

Li king ta, though capable of the greatest posts, would never enter into them. He retired to the mountains Ki chew, that he might study the doctrine of the philosophers Lan and Chwang. Many years after he retired,

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Wang

* Hang, Lyang, Song, are the names of three dynasties,

Wang Shew Ching, Lyn Ohong, and others, paid him a visit, and asked him for the secret of preserving life and health. What are our bodies, answered he, but a composition of blood and animal spirits? That pretended miraculous stone which people talk of, is only a compound of vegetables, stones, and metals. How absurd is it to believe, that this composition can ever preserve or reinstate the blood and the spirits in their vigour and due circulation! To live always frugally, without bustle, in quiet, and, above all, in a great abstraction of heart and mind, is the great medicine, and the precious stone, whose virtues are so rare.

NUMBER VIII.

KANT ON THE ART OF PREVENTING DISEASES.

INTRODUCTION.

IT is no easy matter to get an English coat fitted on the German philosopher. This will account for the uncouthness and irregularity in the following paper. An elegant translation of any of the works of the celebrated Kant is a mere impossibility.—At one time grave and deeply metaphysical, at another jocose and indirectly satirical; his language and arguments are now measured and precise, now irregular and diffuse. This is peculiarly characteristic of such of his works as were written at an advanced period of his life. Add to this, that when he once gets involved in metaphysical *transcendentalities*, his expressions are so profoundly mystical as to be scarcely comprehensible, even to his own countrymen.

But, even with all these defects, his works certainly contain a great deal of sterling matter; and the most trifling composition of a man who has produced such a sensation on the philosophical world, by submitting a continued system of ideas, cannot be altogether unworthy of notice.

In translating his Treatise on the art of preventing diseases, I have endeavoured to stick as close as possible to my original; conceiving, that every sacrifice ought to be made in order to preserve the plain meaning of the author.

[This Treatise bears the following title: *Von der Macht des Gemuth's durch den bloßen Vorsatz seiner krankhaften Gefühle Meister zu sein.* English, *On the Power of the Mind in overcoming unpleasant Sensations by mere Resolution.*]

Translated by John C. Colquhoun, Esq.

THE universal means proposed at the outset, regards only the science of Dietetics; that is, it is merely of negative effect, considered as the art of preventing diseases.

But such an art presupposes a certain power of the mind, which philosophy alone, or the spirit of philosophy, can produce; and to this power merely does the dietetic proposition announced in the title refer.

As I cannot illustrate this proposition by examples drawn from the experience of others, I must necessarily consult my own; and when I have made known the result, I may then put the question to others,—Whether or not they have made similar observations?

There are two wishes which are entertained by the generality of mankind, viz. health and long life. But the

the former wish is not the necessary condition of the latter; it is quite unconditional. The poor wretch, who has been for years lying in the hospital, in a state of sickness and debility, is often heard to express the wish that death might soon deliver him from suffering. But this wish is not uttered from the heart. It is indeed dictated by reason; but opposed by a stronger principle,—that of natural instinct. Even when he hails death as his deliverer, he still demands a short delay; he continually finds some pretext for the procrastination of his peremptory decree. The fanatic resolution of the suicide to put a period to his existence forms no exception from this general observation; because it must be regarded merely as the effect of a momentary phrenzy.

With regard to health as the second natural wish, it is not so easily ascertained. One may conceive himself to be in perfect health, (he may judge of the agreeable feelings of life), and yet be ignorant whether he is so in reality.

Every cause of natural death is disease, whether it is perceived or not. There are many persons of whom we say, without wishing to ridicule them, that they are always sickly, yet never sick; whose diet is a continual alternate departure from, and recurrence to, a particular mode of living; and who, notwithstanding, live to a good old age; although, perhaps, they may not have made any great exertion of their powers. But how many of my friends and acquaintances have I survived, who, having adopted a regular mode of living, and persevered in it, boasted of the enjoyment of perfect health, while, in the meantime, the seeds of death (disease), which lay in them unperceived, were rapidly proceeding towards their development; although the persons themselves were unconscious of

any malady. Every cause of natural death, as was said above, is disease; but the connection between the cause and its effect we cannot possibly feel; the understanding alone can perceive it, whose judgment may be erroneous; but our sensations do not deceive us; and, for this reason, we generally believe ourselves to be in a state of health, unless our feelings inform us of the contrary. But the absence of these feelings admits of no other expressions for the state of the frame, than that it is apparently healthy.

PRINCIPLE OF DIETETICS.

THE doctrine of dietetics must not proceed upon the notion of ease; for this saving of our powers and feelings brings on weakness and imbecility, and a gradual decay of our vital powers, from the want of exercise, as a too frequent and too violent exertion exhausts them. The doctrine of the stoics, *fusine et abstine*, as principle of dietetics, belongs not only to practical philosophy, considered as moral science, but likewise when regarded as *ars medica-trix*. This art assumes then the form of philosophy, when the mere power of reason in mankind, in overcoming sensations by a governing principle, determines their manner of living. On the other hand, when it endeavours to excite or avert these sensations, by external corporeal means, the art becomes merely empiric and mechanical.

An excess of warmth, of sleep, and the tender treatment of a healthy person, are to be considered as evil habits, which originate from the notion of ease.

1. In consulting my own experience, I can by no means subscribe the prescription—‘One ought to keep his head and feet warm.’ I have found it, on the contrary, much
more

more conducive to health to keep both cold ; to which the Russians add the breast ; and my reason for this is, that by following this maxim, one is not so liable to catch cold. It is indeed much more comfortable to wash the feet, in winter, with warm water, than with cold ; but we are thereby exposed to the danger of torpidity in the blood-vessels, which, in old age, often produces an incurable disease in the feet. To keep the belly warm in cold weather might, however, be laid down as a dietetic prescription, on account of the bowels it contains, with the nature of which a considerable degree of heat is congenial.

II. To sleep much at a time, or at intervals, is a method of avoiding those cares to which we are exposed, when awake. But it is indeed singular, that mankind should desire long life, in order to consume the greater part of it in sleep. This notion of ease, however, as a means of promoting longevity, contradicts itself in the end. For the habit of awaking, and again falling asleep, alternately, in long winter nights, is hurtful and destructive to the whole nervous system, and, in deceitful rest, in the highest degree debilitating ; and this sacrifice to ease is therefore a cause of the shortness of life.

The couch is the nest of numberless diseases.

III. To bestow upon ourselves a careful and delicate treatment, in old age, merely for the sake of sparing our powers, by avoiding inconveniences, as, for example, to avoid going abroad in bad weather, or, in general, to delegate that labour to others which we ourselves might undertake, and to hope for longevity by this means, is likewise contradictory to its end, and rather tends to produce what we wish to avoid—a speedy old age and shortness of life.

It has often been a subject of dispute, whether or not
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the state of marriage contributes to promote longevity. I have indeed observed, that unmarried persons, or those who were early left in a state of widowhood, preserve, for the most part, longer a youthful appearance than married persons; which seems to indicate long life. Perhaps the latter betray, in their harsher features, the marks of a conjugal state; which leads us to suppose them shorter lived. But in examining this principle, I have, under the conduct of experience, discovered a fact, which seems to be decisive to the contrary. I found, in the whole list of persons who had lived to an extraordinary age (120-160), not a single one unmarried; nay, they had all been married several times, and most of them again in the last days of their lives. In some families, longevity is hereditary; and a connection formed with such a family might perhaps lay the foundation of another.

A habit of philosophizing, without perhaps being really a philosopher, is likewise a means of averting many unpleasant sensations, and, at the same time, the interest we feel in the employment, produces a certain activity of mind, which renders us in a manner independent of external accidents; and although it is a mere play, still it is powerful in its effects, by preventing the vital powers from becoming torpid from the want of exertion.

True philosophy, on the other hand, which finds an interest in the whole of the object of reason, produces a feeling of power which can, in a certain degree, alleviate the bodily infirmities of age, by a reasonable appreciation of the value of life. But new opening prospects in the enlargement of our ideas, although they may not properly belong to philosophy, are productive of the same, or a similar effect; and the mathematician, who has an immediate interest in the science, is, in so far, likewise a philosopher,

pher, and enjoys the beneficial consequences of such an exertion of his powers, in a fresh and unexhausted old age.

Mere trifles, in a state void of anxiety, produce also, to those of more limited capacities, almost the same effect; and those who, with nothing to do, are still continually employed about something, generally attain a good age. A certain man, pretty much advanced in life, was greatly interested in bringing all the clocks in his room to strike the one after the other, and no two at the same time; which labour gave himself and the watchmaker occupation enough during the whole day. Another found sufficient employment in the care and feeding of his singing birds, in order to fill up the time between his own meals and sleep. An old woman of fortune, who occupied herself the whole day with her spinning wheel, intermingling her labour with insignificant conversation, complained, at a very advanced age, as one would upon the loss of an agreeable company, that, as she could no longer feel the thread between her fingers, she was in danger of dying for *ennui*.

OF HYPOCONDRIASIS.

THE weakness of allowing ourselves to become the prey of disagreeable sensations, which have no determinate object, without attempting to overcome them—the *hypocondria vaga*, a disease which does not originate from any bodily indisposition, but is, in fact, a mere creature of the imagination, by which the patient fancies himself afflicted with all manner of diseases of which he has read or heard—this is the direct reverse of that power of the mind by which we are enabled to overcome unpleasant sensations.

It

It is the terror of evils which might afflict mankind, without their being able to oppose them, were they really to take place; a sort of phrenzy, which may indeed proceed from some diseased matter not immediately falling under the cognizance of the senses, but is merely represented by the imagination as an evil which awaits us. In this case, the self-tormentor (*beautontimorumenos*), without calling his own courage into exertion, in vain demands the aid of the physician; whilst himself alone, by a proper regimen of his own thoughts, can do away those oppressive representations of evils, which might perhaps be incurable were they really to take place.

On account of my flat and narrow chest, which leaves little room for the motion of the heart and lungs, I have always had a natural disposition towards hypochondriasis; which, in my earlier years, rendered me even disgusted with life. But the consideration, that the cause of this obstruction was perhaps merely mechanical, and could not be removed soon, led me to pay little attention to it; and whilst I felt my breast heavy and full, my head was notwithstanding clear and cheerful; which cheerfulness did not fail to communicate itself in society, not by fits and starts, as is usual with hypochondriac persons, but naturally and designedly.

The obstruction still remains; for the cause of it lies in my bodily frame. But I have overcome its influence on my thoughts and actions, by turning my attention aside from this feeling, as if I had nothing to do with it.

OF SLEEP.

Among the unpleasant sensations, may be reckoned that of being unable to sleep at our accustomed time, or

to keep ourselves awake ; but particularly the former. To chase away all thought is, indeed, the usual advice given by the physician in a case of this kind ; but still the same thoughts recur, or others in their stead. Here, however, there is no other dietetic counsel than, upon the consciousness of any rising thought, to turn the attention immediately from it, when, by the interruption of that one thought, a gradual confusion of ideas arises, by which the consciousness of our external situation is removed, and a quite different order takes place ; an involuntary play of the imagination, in which, by means of a wonderful artifice of the animal organization, the body becomes incapable of external motion, while it is still alive to, and extremely agitated by, the internal or vital motion.

This agitation is caused by dreams, which, although when awake we may not be able to recal them to our recollection, must have taken place ; because in the case of a total want of them—if the nervous powers, which proceed from the brain, the seat of our representations, did not work in combination with the muscular powers of the bowels—life could not be for a moment sustained. For this reason, it is probable that all animals dream when they sleep.

Every person, however, who has gone to bed, and prepared himself for sleep, will sometimes find his endeavours to procure it, by thus averting his attention from his ruling thoughts, unsuccessful. In this case, he will feel something spastic in the brain ; which circumstance coincides with the observation, that a man is always, immediately upon awaking, about half an inch taller than if he had remained in bed awake.

As want of sleep is a common complaint of infirm old age, I have felt, for about a year past, attacks something
similar

similar to the cramp, accompanied with very acute pain, although with none of that real and visible motion of the parts affected, as generally attend cramps. These pains I supposed to be fits of the gout, according to the description others gave me of that disease: I therefore had recourse to the physician.

But, in the meantime, becoming rather impatient at finding myself prevented from sleeping, I summoned up my stoic principles, and turned my thoughts with earnestness towards some indifferent object, (as, for example, towards the comprehensive name of Cicero) in order to avert my attention from these sensations; by which means they very soon became blunted, and were finally overcome by drowsiness. And this remedy I can at all times repeat with equal success, whenever my sleep is interrupted by attacks of this kind. But to convince me that these pains were not merely imaginary, I perceived, in the morning, that the toes of my left foot were very much inflamed. I am persuaded, that many attacks of the gout, cramps, and epileptic fits, and even the podagra, which has been so long held incurable, might be alleviated, and perhaps by degrees totally removed, by means of this firm resolution at every new attack; provided that our sensual regimen did not oppose the cure.

OF EATING AND DRINKING.

FOR those who are young, and in a state of perfect health, it is certainly the most judicious plan to consult merely the appetite with regard to their diet, both as to the time and the quantity. But in infirm age, a certain habitual, approved, and wholesome, mode of living ought to be adopted

ed and followed out from day to day; provided the necessary exceptions are made for the want of appetite. In old age, for example, the appetite rejects a quantity of liquid (soup or water), and requires more substantial food, and more irritating beverage, in order to promote the motion of the bowels and the circulation of the blood. In aged people, water requires a longer period of time before it is received into the blood, if it does not contain liquid particles assimilated with the blood (such as wine). The desire which the appetite feels towards drinking water—thirst is, for the most part, a mere habit, and can be overcome by the firm resolution not to yield to it; and by this means the desire is brought within the measure of the natural want. The drinking a quantity of water is likewise prejudicial to sleep, because the warmth of the blood is thereby lessened.

OF THE UNPLEASANT SENSATION PRODUCED BY
INOPPORTUNE MEDITATION.

THOUGHT is to the philosopher a means of nourishment, without which he could not live when alone and awake. But to employ ourselves in deep meditation over a certain determined object, when engaged in eating or walking, produces, in the first case, hypochondriasis, in the second, giddiness. In order, therefore, to avoid these unpleasant sensations, by means of a dietetic principle, it is only requisite to devote a certain portion of time to their different employments alternately, and during the period allotted to recreation, to set aside all serious meditation, and to allow full scope to the more mechanical play of the imagination.

Unpleasant sensations of this kind often take place when, at usual times, being without society, we employ ourselves,

at the same time, in reading or meditation ; because the vital power is, by this labour of the head, drawn away from the stomach, which we are loading.

I have found by my own experience, and heard from others whom I have consulted on the subject, that serious thinking, when walking, very soon fatigues us ; while, on the other hand, if we give ourselves up to the full play of the imagination, the motion is restorative.

This fatigue is still sooner brought on when, with the motion and meditation, is joined conversation with another. In this case, we very soon find ourselves compelled to sit down, in order to pursue the subject of discussion. Walking in the open air, by presenting to the view a continual change of objects, has the effect of preventing the attention from being entirely absorbed by any one individually.

OF ALLEVIATING AND PREVENTING DISEASES BY DETERMINATION IN BREATHING.

SOME years ago, I was at times afflicted with cold in my head, and a cough, which became so much the more unpleasant, as they generally made their appearance at night when I went to bed.

Having become impatient at being thus prevented from sleeping, I resolved, in order if possible to remedy the former disease, to draw breath through the nose with my lips closed. This I did at first with some difficulty, but by perseverance the pipe became always clearer, and at last I succeeded in performing this operation with perfect ease, and immediately fell asleep.

In order to put a stop to the cough, which is occasioned by the irritation produced by the air we breathe through
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the mouth upon the top of the windpipe, it was necessary to have recourse to some immediate operation of the mind, and not to any mechanical means; viz. to avert the attention entirely from this irritation, and to fix it upon some other object, (as mentioned above in the case of fits of the cramp). By this means the pressure of the air was opposed: The exertion, however, drove the blood to my face, as I plainly felt; but the saliva produced by the same irritation prevented its usual effects, and I was necessarily obliged to swallow the moisture. This operation of the mind requires, indeed, a very strong degree of resolution, which is, however, well rewarded by the beneficial effects it produces.— It is certainly a very important dietetic prescription to endeavour to acquire a habit of drawing breath through the nose, so as to perform this operation in the same manner even in the most profound sleep. One who has acquired this custom, will awake immediately, as soon as he opens his mouth; at first a little frightened, as was the case with myself, before I became properly habituated. When one is obliged to walk fast, or to move up hill, a still greater degree of resolution is requisite; but in every case it would be better to moderate the exertion than to make an exception from the rule. This principle may, in like manner, be applied to every kind of severe exercise.

My young friends and pupils have praised this dietetic maxim as approved and salutary; nor have they treated it as one of those trifling domestic remedies, which are introduced for the purpose of superseding the skill of the physician. It deserves notice, that, although, in speaking for any length of time, the act of breathing would appear to be performed through the mouth, which is so often opened; and, of course, this rule transgressed with impunity; yet this is by no means the case. The operation is per-

formed likewise through the nose; for, were the nose stuffed at the time, we should say of the orator—"he speaks through the nose;" whereas, in reality, he does not: and, on the other hand, if the nose is clear, we say "he does not speak through the nose," while, in fact, he does: A singular contradiction in terms, indeed, as Professor Lichtenberg humorously, but very justly, observes.

Many other beneficial consequences might be enumerated, as proceeding from this habit of breathing through the nose. Its effects in the case of cough have already been mentioned. I have likewise found that, when very thirsty, and having no other means of quenching my thirst at hand, I have been able to allay this unpleasant sensation by means of several strong draughts of breath through the nose.

CONCLUSION.

Those diseases, which can be overcome by the mere resolution of man, are all of the spastic kind; but it cannot be said that, *vice versa*, all diseases of this kind can be overcome by resolution. For some of these are of such a nature, that our endeavours to subject them to our determination tend only to increase the complaint. This is, indeed, the case with myself. I have been for some time afflicted with that malady, which, about a year ago,[†] was described in the Copenhagen Gazette as "an epidemical catarrh, accompanied with oppression of the head,"—a disease which has in a manner disorganized my intellectual frame, and rendered me incapable of undertaking any sort of severe mental labour: and, as this oppression has thrown itself upon the natural infirmity of old age, it will probably end only with life.

To

* This treatise was written in 1797.

To this, then, does the art of prolonging life bring us at last; that we are merely tolerated among the living, a situation certainly not the most desirable. But for this I have myself to blame. For why should I not give place to the rising generation? Why should I reject the common enjoyments of life, in order to protract my existence to an unusual length, and bring the death-lists into confusion by my example? Why should I attempt to subject to my own determination that which was formerly denominated fate,—to which mankind were wont to bow in humility and devotion,—by proposing dietetic maxims, which are not likely to become general, or to supersede the therapeutic prescriptions of the apothecary?

NUMBER IX.

A TREATISE ON HEALTH, BY HALLÉ.

Translated from the *Encyclopédie Méthodique* ; Sujet, *Médecine*
Tome 7. Part 1. Livraison 65. Voce *Hygiène*.

CONSIDERABLE progress had been made in printing this volume, containing the doctrines of foreign authors on the subject of health, before I had an opportunity of perusing what the authors of the French *Encyclopédie* had published regarding it; and upon examining that great work, I was much pleased to find that the celebrated Hallé had been employed in that department, and had written a treatise under the word or title *Hygiène*, which is extremely methodical, and ably drawn up, and to which there is annexed the plan of a complete work upon the subject.

Yet various reasons have induced me to translate this work, and to lay before the reader the annexed plan to it. In the first place, though the treatise was intended merely as a sketch, yet it is one of the best works on health that has hitherto appeared, and therefore merits every possible attention. In the second place, it contains the fullest information,

ation, that can be laid before the reader, of the more recent doctrines of the most intelligent men on the continent, regarding health. And in the third place, the *Encyclopédie Methodique* is so vast a work, that few persons in this country have access to it. And consequently a translation of any paper which it contains, so ably drawn up, is peculiarly desirable.

There was also an additional inducement to translate it, from the liberality with which the author does justice to the works on health which have been written in this country.

Upon comparing the plan of a complete treatise on health drawn up by Hallé, with the system which I have pursued, it will be seen that the same objects may be obtained, by a different arrangement, and yet that no material point may be omitted in either: the former plan seems, on the whole, to be best calculated for a scientific, the latter for a popular work. Indeed, in the plan adopted by Hallé, there are too many divisions and subdivisions for a treatise at all intended for the use of the bulk of mankind—of that, however, the reader will be the better enabled to judge by examining both.

DEFINITION, OBJECT, AND DIVISION OF THE HYGIENE.

HYGËIA, or *HYGIÈNE*, is that department of medicine, the object of which is the preservation of health.

Medicine may with propriety be divided into two great departments: one of which embraces every circumstance interesting to man in a state of health; this is the doctrine of *Hygëia* or *Hygiène*, in the most extensive import of that term: the other has for its object, all that concerns him in a state of disease; this is the art of healing, *l'iatrique*, (from the *iaquei*, *sano*, I heal), or, if the reader prefer the

expression *therapeutics*, taking that word, as we have done the term *Hygiene*, in its most extensive acceptation.

Each of these two divisions supposes, *1mo*, the anatomical and chemical knowledge of man; the first considering him in a state of health, and the second in a state of disease: *2do*, The physiological knowledge of his functions, and of their phenomena; the former department still regarding him in the enjoyment of his health, the latter overtaken by disease: *3tio*, An acquaintance with those influences to which he is exposed in each of these conditions, whether necessarily, or in consequence of his necessities, and of the laws of his nature: *lastly*, The advantages which may be derived from these influences, either for the preservation of his health, or for removing his diseases.

But, generally, in treating of *Hygiène*, or the doctrine of health, we proceed upon the supposition, that the reader has already acquired the knowledge of anatomy and of chemistry; it is also taken for granted that he is acquainted with the phenomena of health and of life comprehended under the term physiology.

The knowledge of those influences, to whose action man while in the enjoyment of his health is exposed, and of the advantages which may be derived from them for his protection from diseases, still remains to be considered; and the most comprehensive treatises on *hygiène* are generally limited to the investigation of this part of the subject.

But even when circumscribed within these bounds, the doctrine of health embraces objects of a vast extent: for it is necessary to understand, *1mo*, The various conditions which a healthy man may experience in respect to the influences to which he is exposed; this is the study of *temperaments* and of *constitutions*: *2do*, The causes, the nature, and the effects of these influences; this is what has been

very

very preposterously termed the *non-naturals*: 3^{to}, The method of regulating or of modifying these influences, so as to render them conducive to the preservation of health; this department of the subject has been properly denominated *regimen* or *dietetic*.

The three tracts ascribed to Hippocrates and intitled, *De Dieta*, (*Περὶ Διαιτῆς*), furnish us with an example, with an imperfect one indeed, of this triple division; but the execution of it is very defective; and of these three books, the second is that which has accomplished its object with the greatest exactness.

In this article, I shall content myself with exhibiting a general table of the history of *hygiène*, whether public or private. I reserve for a preliminary discourse on this subject, the complete detail of the plan, according to which, in my opinion, this department of medicine ought to be treated.

HISTORY OF HYGIENE.

THE first observations of man necessarily had for their object the effects of regimen. It is also extremely probable, that before men sought a remedy for their diseases in medicinal substances, they began with moderating the use of aliments; and that diet, whether suggested by nature or directed in consequence of observation, became their first resource in the treatment of their maladies. It is, however remarkable, that Hippocrates, claiming the invention as his own, congratulates himself for having determined the just proportion of diet, relative to temperaments, to circumstances, and to different periods of disease. We may account for this fact by considering, that among men, art beginning its career by a small number of observations, at

first extended its progress by analogy, and ended in a routine. Men of ardent and impatient minds have by reasoning generalized some portions of experience, and framed systems of rules, to which some of their disciples strictly adhere, and which are neglected by the vulgar: but the task of reducing this routine of practices to principles, and of substituting a system of observations, and of laws corresponding to the intentions of nature, in the place of a confused experience, supported by the credit of the example, and of the tradition of their fathers, has been reserved for men of great genius and of real observation.

This progress of the human mind is evidently delineated to us in the page of history.

Hippocrates in his excellent treatise concerning *ancient medicine*, (*Περὶ ἀρχαίων ἰατρικῆς*), exhibits to us the representation of the first attempts to illustrate the nature of *hygiène* or of regimen. It is from these attempts, as he informs us, that medicine dates its origin; and it is to them that he refers us, with the view of demonstrating the solid foundation of an art, which he undertook to defend against the assaults of its defamers.

In this manner, as he remarks, the choice, the preparation, and the admixture of aliments, have given birth to the art of medicine, and are themselves the offspring of observation. This same observation has also shewn, that these preparations, this selection, and mixture, must have become more necessary according to the difference of temperaments; that man, whose constitution began to be undermined by disease, could not make use of the same food adopted by him who enjoyed a perfect state of health. Hence proceeded rules and regimen; *and what name could be given to such an invention more characteristic of its nature than that of medicine?* (says Hippocrates), *since its object had been, by changing*
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the regimen which produced both his sufferings and his diseases, to secure, the support, the health, and the preservation of man,
 Τῷ δὲ νόσῳ τι ἀντιπαραστήσειν δίκαιοτερον ἢ τις προσέκοιτο μάλλον
 εἶναι, ἢ ἰατρικῇ; ἔτι ἰσχυρῶς ἐπὶ τῇ τῷ ἀνθρώπῳ ὑγίει τὴν καὶ τροφὴν
 καὶ αὐτογυμνασίαν, ἀλλαγμὰ καὶ τῆς διαίτης, ἐξ ἧς οἱ ποιοῦσι καὶ γυμνα-
 νοῦνται.

Observation soon subjoined to the regulated quantity of aliment, the measure and proportion of exercise and of rest, as well as of sleep and of watchfulness; and the second step of the art has been the introduction of *gymnastics*, to which the use of baths must be added, which, especially in hot climates, have become one of the daily necessities of man, as well as an object of pleasure and of luxury.

HISTORY OF PUBLIC HYGIENE.

OF LEGISLATION, MANNERS, AND POLICE, AMONG ANCIENT NATIONS, RELATIVE TO HYGIENE.

THE influence of these first observations, upon the happiness, the preservation, the moral and physical perfection of man, and the advantage resulting from political associations, soon struck men of superior minds, destined to give an impulse to the age in which they lived.

Thus do we perceive that the first founders of society, philosophers, and legislators, have established upon these important objects, the foundation of their physical institution, and an essential part of their legislation; and whilst they made the divinity, the principle of truth, the feeling of necessity, as well as the force of example to interpose, for the purpose of insuring a greater degree of reverence to their laws, they also introduced these useful customs; in-
 so-much, that men were prompted to self-preservation, and

to

to accelerate their progress to perfection, by the united influence of reason, of authority, of habit, and of superstition.

Hence arose a distinction between *public* and *private hygiene*; a distinction of great importance, and which never constituted a part of the law or government of any nation, but in ages the most remote. The legislators of modern times have neglected this department of the ancient code, which, by wise regulations, prepared generations healthy and vigorous. Without doubt, the ancients were more convinced than the moderns of the mutual dependence between the physical and moral virtues, and of the necessity of uniting the laws which enjoin temperance and wisdom to those which are enacted to check excesses and to punish crimes. Perhaps they thought that great empires were less calculated for those wholesome rules than small republics: perhaps the modern systems of military tactics, rendering the strength of the individual of less importance for success in war, have occasioned this unfortunate indifference.

The Chaldeans, and above all the Egyptians, who were in the habit of uniting all the useful sciences and all public institutions to their religious mysteries, were the first, as far as our knowledge extends, who joined these two departments of medicine and of legislation. We ought not, at least, to ascribe this honour to the inhabitants of India, to whom some philosophers have allowed a priority of claim over the natives of Egypt and of Chaldea.

It will be universally admitted, that the Hebrews and the Greeks borrowed the greatest part of their customs from the Egyptians. Moses has copied them more exactly, by impressing upon his laws, respecting regimen, a mysterious and a religious character. This solemn character was the only restraint which could bind an ignorant and
superstitious

superstitious multitude; the plain deductions of reason would have never secured their obedience to a code of regular ceremonies, the aim of which was the preservation of their health and existence; but the neglect of which would not have been productive of an effect sufficiently instantaneous to imprint upon their minds the feeling of fear and of terror.

Pythagoras addressed himself to pupils who listened to him with enthusiasm; but his instructions extended not beyond the precincts of his own school.

Lycurgus and Minos incorporated their precepts with the love of their country, and the impression of their virtue which they left behind them, co-operating with national pride, cemented their tenets, in which their fellow citizens acquiesced with all the reverence due to laws.

The public games, and the prizes offered to the successful competitor in the different exercises in Greece, resulted from those political institutions designed to form the body, and to impart to it a superior degree of vigour and strength. The most illustrious citizens were emulous of the glory to be reaped in these fields of contest; and the gymnasia were the first schools in which the youth were trained up for all kinds of triumphs.

Among the Romans these institutions lost much of their utility; the glory resulting from the public games was abandoned to slaves and gladiators; and instead of those pacific and honourable contests, which charmed the enlightened inhabitants of Greece, bloodthirsty Rome sacrificed human victims on the altars of her pleasures. Certain transient modes of fashion, which in the age of the emperors, introduced again some distinguished personages upon the public stage, do not merit any share of our attention in this place. These whims originated rather in a depravation

ation of morals, and in the neglect of every species of decorum, than in any national establishment for the purpose; and the glory of having completely subdued modesty, was the only triumph which accrued to both sexes from these shameful excesses. It was not thus that the Spartan women presented themselves to the sight of their fellow citizens; the idea entertained of their virtue supplied the place of garments, whilst it commanded the respect of the spectators, and their utmost ambition was to shew themselves worthy of supplying the country with heroes.

The gymnasia, however, were kept up among the Romans; and the description of the buildings allotted to these purposes, which has been handed down to us, proves that they attached great importance to the gymnastic art; and that they included it among the principal departments of the education of youth.

Public baths were constructed at Rome on a scale of the greatest magnificence; but the practice of them could only be regarded either as an object of sensuality or of health to individuals, since it was not united with the gymnastic art; it is when thus associated alone, that baths can be ranked among public and national institutions.

To the account of public *Hygiène*, must be placed the care, with which, among the Romans, the ediles attended to the cleanliness of cities. The expences devoted to the repair of sewers, and to the purpose of procuring an abundant supply of water to a great city, are attested to us by monuments, which time has respected, and of which the indolence of the modern Romans still avails itself. In general, we may search for the materials from which the history of public *Hygiène* among the ancients may be composed, 1^{mo}, In their legislation; 2^{do}, In their customs and

manners; 3th, In their regulations respecting the public police.

1, PHYSICAL LEGISLATION, OR LEGISLATIVE HYGIENE AMONG THE NATIONS OF ANTIQUITY.

PHYSICAL LEGISLATION, OR PUBLIC HYGIENE AMONG THE HEBREWS.

A BIRD'S eye view of what the legislators of antiquity have accomplished for the preservation of *health*, will not be devoid of utility in this place; and the circumstances of our present situation bestow a new interest on this subject.

I do not consider what Moses has left us on this topic as deserving of any very ample detail. All the measures which he adopted for the preservation of health, are referable to three principal objects. The prohibition of certain kinds of food, ablutions prescribed for legal uncleannesses, and the seclusion of certain distempers regarded contagious, especially leprosy.

Some writers assign a regard to health as the origin of the rite of circumcision; but I do not find it stated in any work, that the inhabitants of Arabia and of Syria had been subjected to any topical affection in the parts removed by circumcision. The practice of this operation in the island of Madagascar, among nations who in other respects do not appear to have any notion of Judaism, or of Mahomedism, do not tend to give additional confirmation to this opinion.

In respect to the legal prohibition of certain articles of food, it is, in my opinion, very difficult to assign a reason why so many species of animals were proscribed among the Hebrews.

Hebrews. It however has been imagined, that the leprosy being a very common disease among them, and swine being subject to a certain kind of derangement of the adipose membrane, very analogous to leprous deformity, there was ground for the belief, that the use of the flesh of this animal was apt to communicate a predisposition to leprosy.* However improbable such an opinion may be, it assumed some ascendancy over the minds of men at a period when our knowledge of animal physics was limited to a few weak analogies; and it is to these analogies that the proscription of all these animals, which were regarded as constituting one individual class, is to be ascribed, because one of these animals, upon some similar reason, appeared suspicious. The hog appearing at first sight entitled to be ranked among those animals who have the hoof cleft, and yet being remarkable on account of its inability to chew the cud, which is a function common to almost all the animals of this class, it follows from this circumstance, that the union of the power of rumination with the character of a forked hoof, appeared an essential attribute of those animals, whose flesh is to be regarded as salubrious food. Considering the matter in this light, it was concluded, that two classes of animals ought to be excluded from the article of diet; 1st, that composed of the ruminating animals that are not cloven footed; 2^d, that of cloven footed animals which are not endowed with the faculty of rumination.

Moreover,

* The flesh of hogs is well known to be unwholesome in Egypt, and other countries of the east, where they are fed differently from what they are in Europe; and, it is probable, experience of this sort induced the eastern legislators, Moses and Mahomet, to forbid its use by an article in their respective codes of laws.

Moreover, those animals whose feet have toes have been arranged in the same class with such as have the feet unforked; so that those among them that chew the cud have been excluded from the number of those articles of food, the use of which has been permitted by the law.

This precept resulted in a greater uniformity in the regimen of this people; for the kinds of animal food authorized by their law were reduced to a small number, since among the birds and fishes, there were similar prohibitions which excluded from the range of salutary food, numerous tribes of winged fowls, of fishes, and of amphibious animals.

This uniformity in their regimen, rendered necessary by the prohibitions sanctioned by their religion, joined to the absolute interdiction of foreign alliances, and even of one tribe with another, must have preserved among the individuals of the Jewish nation, a peculiar analogy with respect to those features and physical characters which constitute national resemblances. It has thus been alleged that the race of the Jews is sensibly distinguished in the various climates, and in the midst of those very different nations, among whom this people is scattered. I know not, however, whether it would be an easy task, to analyse the lineaments of this resemblance; and with regard to myself, I never could explain them with such precision as to satisfy my own mind.

It is a more easy task to comprehend the object for which legal purifications were instituted, in warm climates, where the rapid putrefaction of animal substances, the profuse perspiration, and the odour of that excretion, especially among individuals of a red complexion, a colour which is abundantly common in these countries, are so many causes of unhealthiness, which ablutions counteract. The Arabs,
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who are descended from the patriarchs, the ancestors of the Hebrews, and from whom have sprung the first Mussulmans, scrupulously adhere to the same practices. Mahomet found them prevalent in that country, and prescribed them to his followers. It is well known that, in those countries so often ravaged by the plague in our times, the best prophylactic against this contagion, is the immersion in water of all those bodies that are capable of communicating it. These remarks enable us to assign a reasonable motive for the purifications prescribed in the law of Moses. This legislator invested cleanliness with the authority of a religious precept; and chose rather to carry the practice of this virtue to the most scrupulous minuteness, than to run the risk of suffering it to be neglected in circumstances of importance. It is a very singular fact, that this people, who have been able to preserve so many physical traces of the first distinguishing characters of their ancestors, should be almost everywhere remarkable for an excessive degree of slovenliness, wherever the individuals of it are found united together within the same limited space; as is observable in Rome, in certain cities of Germany, and in all those places where there is a particular *ward* or quarter appropriated to this nation. If we may take it for granted, that this propensity to uncleanness is hereditary, this supposition furnishes a still more satisfactory reason why their legislator has taken so much care to render cleanliness obligatory on a nation, whom he knew to be little inclined to the practice of this domestic virtue.

With respect to the seclusion of certain diseases deemed contagious, and especially the leprosy, the Mosaic code exhibits the same characteristic features, that is, an excessive degree of precaution. We are ignorant of the nature of the leprosy, of the walls, and of the buildings; but we
everywhere

everywhere observe the most studious care to destroy even the shadow of contagion. The leprosy of the Hebrews appears to have been the disease denominated elephantiasis in modern practice; and the discrepancies which the description given of it by the Hebrew lawgiver, seems at first sight to present, disappear, as the citizen Chamferu has remarked, when we consult the context, and observe, that the expressions from which the translators have inferred, that the leprosy produced pits, or depressions of the skin, instead of forming projecting tubercles, only signify, that this derangement of the skin penetrated below its surface, and extended through its thickness, so that the expression, pit or depression, has been substituted for that of depth or penetration. We know that the terms of the Hebrew language lead to similar mistakes, from the number of significations of which the same word is susceptible. This position being admitted, and the leprosy and elephantiasis being also the same disease, it might excite our astonishment, that persons labouring under this distemper, which in our climate is, in no instance infectious, and whose contagious nature is even very problematical in warm regions, should be so rigorously excluded from the community among the Hebrews, if an excessive degree of precaution in every other point respecting health, had not been one of the distinguishing characteristics of the ceremonial code of this people.* It may, moreover, be observed, that the hideous and

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disgusting

* The contagious nature of leprosy appears to be proved from the medical histories of the French army in Egypt. These accounts do not authorize us to identify leprosy with elephantiasis, and this latter disease is not infectious. See *Relation Chirurgicale, &c.* par D. Larrey, Docteur, &c. &c. Paris, 1804.

TRANSLATOR.

disgusting aspect of persons attacked by this frightful malady, must have inspired this aversion, and countenanced the prejudices of those who regarded it as contagious. It is perhaps to this frightful appearance alone, that the currency which the same opinion has obtained in our American colonies, where lepers are with the same care excluded from society, is to be traced.

LEGISLATIVE HYGIENE OF LYCURGUS AND OF THE GREEKS IN GENERAL.

All the observances applicable to the preservation of health contained in the ceremonial institutes of the Hebrews are limited to these points alone. For we do not observe any traces of a public institution authorized by their law, which had for its object to promote the physical perfection of man. The first laws in ancient history which furnish us with examples of such an establishment are those of Lycurgus. It is, indeed, true, that the laws of Crete had already prescribed public education and eating in common. But what the Cretans had done in this respect, the Spartans executed with still greater efficiency, since Lycurgus occupied himself with the task of establishing the empire of the laws upon the foundation of public manners, which he framed and prepared by institutions still more powerful than the laws themselves.

It is proper to remark in this place, as suggesting considerations which are by no means foreign to the physical knowledge of man, that the art of forming his manners, is perhaps of much greater importance than the art of prescribing him laws; *quid leges sine moribus vana proficiunt?*

Manners

Manners are a species of habit, by which man is carried along, as it were insensibly and contrary to his inclinations, which gives an uniform direction to all his actions and to all his ideas. The tendency of this direction ought always to be to urge him on to what is right, but less by precepts than by an irresistible impulse. It is by addressing his senses through the medium of external objects, by institutions, monuments, feasts, and public solemnities; that man, always prone to imitation, always disposed to accommodate himself to the objects with which he is surrounded, is prompted to action. It is therefore a point of great importance, when we wish to change the manners of a nation, to erase every trace of its ancient habits, and to delineate everywhere the image of those which we are inclined to substitute in their place. In general, laws address the understanding; and manners subjugate man through the instrumentality of the senses. No people understood better the influence of manners than the Greeks; and no legislator availed himself more of this influence than Lycurgus. But however nearly allied these considerations may be to the physical history of man, we must limit our inquiries, in this place, to that department of that eminent man's legislation, which has for its object the preservation of health, or the perfection of our species.

In studying the legislation of ancient nations, we must never forget that their chief aim was to furnish the state with hardy citizens and able defenders. Every citizen was a soldier; and every private consideration was invariably sacrificed to the interests of the republic. It is in this order of things that we must sometimes seek for the origin of customs, which in our own times appear barbarous and inhuman.

It was an established custom at Sparta, as among the most ancient states of Greece, as well as at a latter period among the Romans, to decide upon the fate of every infant at its birth; and according to its strength, and the indications which it gave of a sound constitution, to receive it into the number of the living, or to exclude it from this privilege, when its condition authorized the presumption that, in its future life, it would only become a feeble being, destitute of ability to serve its country.

Among all other nations, the parents themselves were the arbiters who gave judgment in this case; at Sparta, they were the elders of the tribe, who decided solemnly upon it in the name of the republic. The Spartans undoubtedly were of opinion, that the possibility of strengthening a feeble constitution ought to be deemed a hazard too disadvantageous, and did not imagine that men, so little befriended by nature, would indemnify their country for the debility of their organs, by the extent of their knowledge, or the eminence of their virtues.

The Thebans did not admire this barbarous custom; and perhaps the recollection of the fate of *Oedipus*, was, among this people, the cause of an exception, so accordant to the dictates of humanity.

We must not, however, estimate the loss which Lacedæmon must have sustained from a proscription of this nature, by that which the same law would have occasioned among ourselves. The licentiousness of parents, their debauchery, their effeminacy, their weakness, superinduced by a wretched system of education, must among modern nations have greatly multiplied those feeble beings, whom death seems to claim from the first stage of their infancy, and who can only be rescued from his grasp by dint of attention and of vigilance.

vigilance. Independent of all this, Lycurgus had turned his attention to the great object of preparing vigorous stamina, and fought, in the education of the Spartan women, the ingredient of that strength of body, which, combined with energy of soul, was to form the heroes whom he wished to give to his country.

It was, with the view of accomplishing this important purpose, that until the time of marriage, the Spartan women, trained up to the same exercises with the men, derived from a masculine and severe education that strength, which they were to transmit to their children.

At the period of their marriage, they ceased to frequent the gymnasium, and devoted themselves to the discharge of those important duties, which the honourable situation of wives and of mothers imposed upon them.

It is a very ancient opinion or prejudice, that something is conveyed to the child from the external impressions with which the mother is affected during pregnancy. While this period lasted, the eyes of a Spartan woman were constantly feasted with images, which recalled the idea of beauty combined with strength. Thus careful were this people, that every circumstance concurred to prepare a race of heroes; and prior even to his birth, a Spartan was not to be regarded as an ordinary mortal.

Scarcely had he appeared in the world, when the eyes of his country were fixed upon him; and his education became the most important concern of the state. It was a custom among the ancient Greeks, of which the history of Achilles furnishes us with an example, to immerse the newborn infant in cold water at the moment of its birth. Other nations made their children pass through the fire. Le Clerc, (*Hist. of Medicine*, Book I, c. xiv,) after having extracted

from Plato all that this philosopher has urged against Herodicus, and against gymnastic medicine, quotes the example of the Lacedemonians, who plunged their children in wine immediately on their birth. He adds, that these republicans concerned themselves little about the accidents which might result from this measure, being persuaded that those to whom it proved fatal, would have never become robust and hardy citizens. He observes, without quoting his authority, that the children thus treated frequently died of an attack of epilepsy. Le Clerc and his author have undoubtedly, in this place, mistaken epilepsy for *tetanus*, or locked jaw, which is frequently induced in new born infants, by cold and moist temperature; and, in general, by every kind of irritation, especially in warm countries.

The young Spartans, in early infancy alone, were intrusted to the care of their parents. This period extended to the age of seven years; and during this time, so favourable for the development of their organs, all their physical and moral faculties unfolded themselves in perfect liberty. Their limbs were not shackled with strait bonds, their minds were not enslaved by the harshness of a premature severity.

When they reached the seventh year of their age, they became the children of the state; and from this period they began to inure themselves to fatigues proportionate to their age. Their sports, always performed in public, as well as their exercises, were constantly directed to the same end; that of hardening their bodies gradually against external impressions, of bracing their limbs, and of carrying their motions to the highest pitch of improvement. When they attained to the age of twelve, they began to lay aside their
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their loose flowing hair, and the long dress of infancy; they stripped themselves even of their coat, stockings, and shoes, and clothed with a simple cloak, and spending almost the whole day in the gymnasium, by the most rigid mode of living, by the most violent exercises, and by the strictest temperance, they were trained up to a military life, which, in the ancient systems of education, was the most indispensable of all acquirements, since every citizen was a soldier. For the spirit of conquest and of sway unceasingly tormented these restless nations, who have bequeathed to posterity the finest models of wisdom and of humanity combined with the most deplorable examples of ferocious war.

The Spartans were less accustomed to the use of baths than the other states of Greece. They appear to have been familiar with the use of the dry stove, since in the public baths of Rome, that department of the building appropriated to this kind of stove was denominated the *Lacnicum*. But they were habituated to bathing or immersion in the flowing stream of their rivers.

In the Spartan system of education, there was a custom which merits particular notice in this place, on account of the diversity of its effects upon the morals of the different states of Greece. In fact, such an usage suits a nation distinguished for its wisdom and for the strictness of its morals, and serves to carry its virtue to a still higher pitch, which, on the contrary, can only increase licentiousness and dissipation in states abandoned to pleasure, and corrupted by effeminate luxury. These observations are applicable to the custom established at Sparta, and which Lycurgus had borrowed from the Cretans, of cementing tender attachments among the youth, by means of which, friends inseparably united, interested in the glory and honour of their associates,

became mutual instructors, whose superintendence resulted in more advantageous consequences, than all the severity exercised by their masters. The publicity of their intercourse was the security of their virtues; and we may moreover place the utmost confidence in the purity of an institution of this nature, among a people, whose women impressed upon their contemporaries, and handed down to posterity, an high opinion of their virtues and of their modesty; although they scorned, even in the eyes of the public, the use of those veils which are rather to be considered as the emblems of virtues than as its guardians.

On the contrary, it is well known into what profligacy of conduct these intimate associations degenerated among the Athenians, among whom even the virtues of a Socrates were not exempt from suspicion, and appeared debased by the devoted attachment which the young Alcibiades professed for him. It may readily be conceived, that the institutions of Sparta could not be naturalised at Athens with facility; and among nations addicted to this species of debauchery, a degenerated and enfeebled race must needs have suffered the punishment due to those injuries committed on the most sacred laws of nature.

To the exercises by which their early infancy was invigorated, succeeded a series of real contests among the Spartan youth, who had attained the age of eighteen. They were taught to despise and resist pain upon every occasion; they encountered that feeling in a more formidable shape in the midst of their pleasures than in the field of battle. Instead of being abandoned to themselves, in an age in which the turbulent passions predominate, they were at this period furnished with new incentives to their courage, and all their passions controuled or absorbed by the love of their
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their country, kindled in their souls exquisite enjoyments, and delivered them up to a species of intoxication, unaccompanied by pleasure.

Sensuality experienced every discouragement; and the black broth of Sparta, which gratified an appetite excited by violent exercise, was undoubtedly a dish which a Spartan alone could relish. The arts, the offspring of imagination, and which afford it so agreeable an exercise, were only rendered familiar to the Spartans as far as they inspired noble and manly sentiments. To the art of oratory this people were strangers; their eloquence consisted in strength and precision of ideas; their poetry was pregnant with fire and enthusiasm; and their music admitted only of grand and forcible modulations, calculated to prompt to daring and courageous enterprizes.

Time impairs the noblest institutions; but it is remarkable, that the vices, which at first changed those of Lycurgus, were the very opposite to those which generally undermine and enfeeble the primitive virtues of infant states. Such was the nature of the impulse communicated to the Spartans by their first institutions, that, instead of tending to enfeeble the sentiments with which they inspired them, they transgressed the limits which the legislator prescribed to them; firmness and courage were converted into ferocity and barbarity; the pride of the stern virtues extinguished the very sentiments of humanity; and instead of resting satisfied with rendering their bodies hardy and vigorous, they subjected them with a savage joy to the most unavailing punishments. The steadiness with which the Spartans persevered in the first track which Lycurgus pointed out to them, evidently resulted from the care exercised by that legislator to preserve them from all commixture with foreign nations.

nations. He rather chose to deprive them of the arts, the offspring of luxury and of commerce, provided they remained strangers to the corruption which followed in their train; and it was perhaps a more advantageous alternative for them to preserve all the roughness of a first impression, than to suffer its original traces to be effaced, in associations which never introduce elegance of manners without its concomitant vices.

In fine, the greatest eulogium which can be passed upon the physical institutions of Lacedemon is, that in no other district of Greece could man lay claim to purer and nobler blood than circulated in the veins of the Spartans. (See Travels of the young Anacharsis.)

PHYSICAL CODE OF PYTHAGORAS AND OF PLATO.

IT was not under the formal sanction of laws, that the other states of Greece received such of their practices as are connected with the preservation of public *health*; and, in general, these objects are far from being so nearly allied to legislative enactments as to the manners and customs of nations.

There are, however, two men who merit a place in the rank of lawgivers; and whose precepts, considered in their relation to public *hygiène*, may be compared with the code of Lycurgus. These are *Pythagoras* and *Plato*. The former, with no other design than that of establishing a school of philosophy, became almost the legislator of a nation; and the latter, in devising a system of laws for states, was simply denominated a philosopher.

Sobriety and temperance were the original basis of the dietetic laws of Pythagoras; and abstinence from certain substances,

substances, as well as a vegetable regimen, were only conclusions deduced from a first principle; the object of which was to procure, in conjunction with bodily health, the perfection of the intellectual functions. Certain prohibitions could not be considered as strict and rigorous precepts, except for his disciples alone, who, like all the followers of religious or philosophical schools, always take merit to themselves, in increasing the severity of observances, whilst they not unfrequently lose sight of the end for which they were instituted, viz. the physical and moral perfection of man. The man who sheds the blood of an ox or of a sheep, will be habituated more easily than another to witness the effusion of that of his fellow creature; inhumanity takes possession of his soul; and the professions, whose object is to sacrifice animals for the purpose of supplying the necessities of men, impart to those who exercise them a ferocity, which their relative connections with society but imperfectly serve to mitigate. Would it be a true inference from these premises, that the thirst of blood is one of those depravities to which the human species abandon themselves with the least reluctance? and ought men to be compared with those carnivorous animals, among which the colour, or the smell, or the taste of blood, awaken a terrible instinct, which prompts them to forget even the very master whom they formerly caressed, and from whom they received their nourishment?

There is another observation which I equally refer to the physical organization of man, and which owes its origin to that kind of religious school established by Pythagoras. It relates to the influence of symbols and of symbolical observances, in engraving the maxims of morality upon the human mind. He had learned this method among the Egyptian
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priests;

priests; but he had not considered that man, superstitious from his birth, soon attaches himself to the type, whilst he overlooks the idea of which it is the emblem, lays hold of the image to substitute it in the place of the thing represented, and by this means becomes more religious without improving his conduct. There is little reason to doubt, that idolatry and superstition had their origin in symbolical and mysterious language, which, covering truth with a veil, exhibited her only under emblematical appearances. But this inquiry is less immediately connected with the *doctrines of health*, than with the nature of man.

We may observe here, as one of the circumstances which most decidedly contribute to bodily health, the care exercised by the Pythagoreans in regulating all the emotions of the soul, not only by the study of philosophy and of the speculative sciences, not only by the precepts and practices of the mildest morality, but, moreover, by the use of music, by the peaceable prospect of agreeable solitudes, in general, by all those means, which diffusing serenity over our external senses, transmit into our souls the placid affections of our eyes and of our ears.

I have not thought it superfluous to dwell for a moment upon these considerations; since the system of Pythagoras was not confined within the limits of his own school, but became, during a certain period, the law of a Grecian colony established at Crotona, which was destroyed only by the jealousy of certain persons, who, on account of their vices, were refused admission into this society. A nation of philosophers, governed by the mildest laws, among whom the passions kept in perpetual subjection to the dominion of reason, would have never interrupted peace, union, and equality, would undoubtedly have been a noble spectacle,

spectacle, and a rich source of observation, for all those who devote themselves to the study of the physical and moral qualities of man—a chimerical fabric; but which it was an honourable attempt to have reared to a certain height, in spite of the inevitable destruction which human depravity prepared for it. The physical effect of an institution of this nature upon successive generations, in one of the finest climates in the world, is unfortunately a problem which has not yet been solved, which offers itself to our meditation; but which will furnish few pages in the history of public hygiene.

The fine chimeræ which occurred to the mind of Plato, while organizing his ideal republic, affords little new material adapted to our purpose; and the division of the education of the elds of warriors, between the gymnastic art and music, is the only circumstance which we deem worthy of observation in this place. It arrests our attention, both because this department of Plato's plan is supported upon the experience of the states of Greece, and because the legislator's object was to counterbalance the physical effects of one of these institutions by those of the other: inasmuch that music cured the soul of that rudeness and savage disposition with which the exercises of the gymnasium infected it; whilst these, on the other hand, in invigorating the body, and in accustoming it to endure the most severe labours, guarded the body against that effeminacy and want of energy which resulted from the effects of music. We may, however, remark in this place, that by the term music (*μουσική*), Plato and the ancients understood also every subject comprehended under the jurisdiction of the muses; that is, all the speculative sciences. It is nevertheless certain, that music, properly so called, occupied a conspicuous

conspicuous place among the institutions of Greece. They regarded it as possessing extensive influence, both physical and moral, over the minds of men; since the kings and the ephori enacted a dishonourable decree against an Ionian musician who had just introduced into Sparta innovations, which, by bestowing more voluptuous modulations on music, appeared to them calculated to corrupt the youth. In other countries of Greece, several laws prescribed the number of strings which the lyre should possess, and prohibited any addition to this number under the severest penalties. Plato himself considers the changes introduced into music as symptomatic of depravity of morals, and as a presage ominous to the community. He prescribed to the pupils of his republic the Dorian and Phrygian modulations; of which, the former was energetic and manly, the latter lofty and noble. But he prohibited the Lydian measure, calculated to introduce languishing plaintiveness; and the Ionian, which breathed soft voluptuousness. Whatever may be in this, one expression of this great man, instructs us as to the object which he had in view when he composed his system of public education—"When you arrive in a city," he observes, "you will perceive that education is neglected, if there be a want of physicians and of judges."

I do not examine here in detail what Aristotle has advanced after Plato, and the assistance which many other philosophers of antiquity have been able to afford, either by their actions or by their writings, in advancing the perfection of the species. There are few things deserving of attention in these, which ought not to be referred to the remarks just now made, and which have not been borrowed

ed from the examples quoted in the preceding disquisitions.

LEGISLATIVE HYGIENE OF THE PERSIANS, TO THE PERIOD
OF THE INFANCY OF CYRUS THE GREAT.

It is near the time of Pythagoras, that is, in the sixth century before the Christian era, that we must fix the epocha at which Xenophon represents Cyrus leaving the severe seminary of the Persians, and exhibiting at the court of Astyages, an example of a manly education, of a sobriety, a wisdom, and an abstemiousness, which appeared an incomprehensible phenomenon to the voluptuous courtiers of the emperor of the Medes.

Let not the *Cyropædia* be regarded merely as an ingenious romance; this romance, at least, cannot be considered as built upon a foundation entirely fabulous. Is it to be imagined that Xenophon would have placed before the eyes of his fellow citizens so fine a picture of a foreign and a rival nation of the Greeks, had he not entertained a settled opinion upon this point, especially at a period when, degenerated from its real splendour, and debased by luxury and effeminacy, the Persian nation no longer furnished any traces of that unchangeable glory which is the inseparable and exclusive companion of virtue?

Among the Persians, of whose manners, before the era at which this nation was blended with the Medes, Xenophon has left us so exquisite a sketch, the education of children was not intrusted to their parents. The child was the property of the nation; and from the age of six or seven years, was under the superintendence of magistrates, selected from among the elders, and who were chosen for the special purpose of presiding over the education of the youth.

youth. During the period of ten years, they were inured to every species of exercise; they rose at break of day, ate in common, not in the houses of their parents, but in those of the masters to whose charge they were confided. They were there accustomed to endure hunger and thirst, and to rest satisfied with a frugal repast. Their drink was water; bread and *cardamon* (*negdapor*, which translators interpret by the term *nasturtium*, or *water-cress*), constituted their food; and their exercise consisted in bending the bow and in throwing the javelin.

When arrived at the age of puberty, still severer exercises were allotted to them; and until they reached their twenty-fifth year, they served an apprenticeship to war, in all its various forms. They slept in the open air, under arms; they accompanied to the chase the chief of the nation, sustained in this exercise the representation of hostile conflicts, endured cold, and every species of inclemency of weather; ate only once in the day, and fed upon the game taken by the hunters; on all other occasions they were satisfied with the simple *cardamon* added to their bread. Such of them as did not participate in the fatigue of the chase, engaged in exercise among themselves, and contended with one another for the prize and glory of dexterity and strength.

They attained their twenty-fifth year before they associated with the full grown men. This people were not anxious to gather the fruits of maturity in the age of expectation; and they did not prematurely exhaust the resources of the state. Every adult carried arms for the space of twenty-five years. At the age of fifty, he was enrolled in the class of old men; and from this period he never engaged in warfare, except in those conflicts which were maintained in defence of his own habitation, and of the national territories. Such was the order of the laws respecting the edu-

cation and employment of men in a warlike and invincible nation, which did not sink under the efforts of the Greeks, until a period when incorporated with the Medes, and enervated by luxury, and by the riches acquired from the nations which it conquered, it extended its dominion far beyond its proper limits,—and whose descendants firmly sustained all the weight of the pride and of the power of Rome.

One remark still remains to be made on this people, which is not foreign to the subject under discussion. The laws prohibited them from blowing their noses and from spitting in public, as well as from retiring from their exercises for the purpose of satisfying the calls of nature. This singular prohibition, as Xenophon observes, would be inexplicable, did we not consider, that the excessive temperance of this people in limiting the use of food to what was indispensably necessary, from this circumstance alone, rendered evacuations less pressing and less frequent, the copiousness of which is in general proportioned to the superabundance of fluids, and to the imperfection of digestion.

CONCERNING THE MANNERS AND CUSTOMS OF THE
ANCIENTS, RELATIVE TO HYGIENE.

THERE is an authority paramount to that of the laws; it is the authority of manners. By manners, I understand in this article, all that is universally established among men by the nearly irresistible influence of habit and of imitation. This is the precise import of the Latin expression *mos, mores*. We violate laws, but we never violate manners; or at least this violation is never committed by the vulgar; and the vulgar constitute the bulk of nations. Manners, then, are one of the most important objects of inquiry, both in a

physical and in a moral point of view. Laws give us an idea of the legislator's abilities; manners indicate the strength of nations.

CONCERNING THE GYMNASTIC ART.

THE next important consideration on the subject of *hygiène*, with which the manners of ancient nations furnish us, is the gymnastic art. This at first constituted the natural exercise of soldiers; and Homer, in certain parts of the *Iliad*, gives us a lively description of real military gymnastics. The prizes offered to dexterity and strength in these innocent wrestlings, and the interest which they excited both among the spectators and among the competitors, soon converted these warlike institutions into pleasant shows, which decorated the leisure intervals of peace, and mingled with the public feasts. Hercules and Pelops instituted games of this kind; and Iphitus, king of Elis, after their example, revived them at the establishment of the Olympic games. Philosophers and physicians soon perceived, how greatly conducive these exercises were to health and strength, to what perfection a young man attained by the habitual use of them, how many ailments vanished in the midst of those various and complicated motions which they rendered necessary, and what energy these motions imparted to the preserving and depurating functions. They observed, that even convalescents, in adjusting the use of these exercises to their respective degrees of strength, recovered more expeditiously from a long and painful train of maladies. They communicated their observations to their fellow citizens, and the practice of gymnastic exercises was soon more extended. Buildings were constructed with the view of giving countenance to this establishment, and of uniting
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it with other institutions which composed the education of youth; and it is obvious how much the gymnastic art contributed to the perfection and preservation of man.

It is from considering the relation between its practice and the preservation of health, that the invention of this art has been ascribed to Herodicus, although before his time Iccius had delivered some precepts respecting it. It has been said of Herodicus, that he preserved his life, and attained to a great age, in spite of a sickly constitution, by the use of gymnastic exercises: and it was on account of this care of his health, that Plato regarded his conduct as reprehensible; since this philosopher was of opinion,* that an infirm constitution estranges man from the public interest, and confines his attention entirely to himself; and that to prolong such lives, is equally injurious to the republic and to those unfortunate individuals, whose existence is for a long period protracted in the midst of their infirmities. Whence happened it that a man of Plato's penetration had not remarked, that many individuals of infirm constitutions have been gifted with great perspicacity of understanding, and by their wisdom and counsel have proved infinitely useful, both in respect to their own private concerns and to the public weal?

But let us return to the consideration of gymnastic institutions. We have seen that the ancient Persians made great use of these in the time of Cyrus. The progress of this art accounts for the distinction which Plato, Aristotle, and Galen made, between *military gymnastics*, the most ancient of all, *athletic*, or, in the language of Galen, *exceptionable gymnastics*, and *medical gymnastics*, or real *gymnastics*;

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* See the Third Book of his Republic.

the object of which was the preservation of health, and the perfection of the species. This last sort constituted an essential department of the education of youth. Varro* remarks, that whilst the Romans employed themselves in agriculture, and derived from the purity of their morals, and from the labours of the field, that strength and vigour which preserve health, they remained ignorant of the gymnastic art. This species of exercise became necessary, when they quitted their fields, to surrender themselves to the tedious sloth of their cities and to fatal inactivity. Physicians, from the time of Varro to the fall of the empire, carefully inculcated this practice, for the cure of diseases, and for the preservation of health. And Plutarch informs us, that in his time, these useful exercises were universally practised.† We have already adverted to the excesses of which this people were guilty in this respect under the emperors.

Medicinal or true gymnastics, that species, viz. which was comprehended in the education of youth, and to which men in all ages have had recourse for the preservation of their health, differed from the athletic, not strictly by the nature of the exercises, but by the degree in which they were practised. In reality, the object of the athletic species was, not to impart to the body all the permanency of a vigorous state of health, but all the strength which it could possibly acquire. Whence resulted an excessive strength of constitution, which was denominated *athletic*; and of which certain ancient statues gives us an idea, for such men are very rarely observed in our times. All the ancients repro-
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* De re Rust. Lib. ii, Proem.

† See Mercurial de Arte Gymnast. Lib. i, cap. 5.

bate this excessive degree of bodily vigour; they regard it as surpassing the boundaries of nature, as injurious to the mental functions, and even to the stability of health.

It is to the athletic, at least to the abuse of the gymnastic art, improperly understood, and carried to an immoderate length, that the following *aphorism* of Hippocrates, which the ordinary copies give us in these terms, must undoubtedly be applied: *Εν τοῖσι γυμναστικαῖσι αἱ ἐπ' ἄκρον ἐκτείναι, σφαιλαί, ἢ τῷ ἐσχάτῳ ἔωσι. ἡ γὰρ δύναμις μένου ἐν τῷ αὐτῷ ἐδὲ ἀτρεμεῖν. ἐπεὶ, δὲ ἢ ἀτρεμεῖσιν, ἐδὲ τι δύναμις ἐπὶ τὸ βέλτιον ἐπιδιδόναι, λήπτται ἐν ἐπὶ τὸ χεῖρον. ταῦτα ἢ ἄνωκα τῇ ἐκτείνῃ λυσιζυμφοῖται μὴ βραδύως, ἵνα πάλιν ἀρχὴν ἀναθερψίως λάβῃ τὸ σῶμα, &c.* *That is, in gymnastic exercises, it is dangerous to attain to the highest degree of vigour, if this vigour be pushed to the last extremity to which it can arrive. In fact, this state of the body cannot always remain at the same point, or maintain its position without variations. Since then it cannot thus permanently support itself, and that nevertheless it is not susceptible of any amelioration, it must necessarily grow worse. It is on this account that it is useful to reduce without delay this excess of vigour, that the body may recruit itself apart, &c.*

Villebrune is not inclined to understand this aphorism as referring to athletic gymnastics, but only to medicinal gymnastics; and instead of *γυμναστικαῖσι*, in *gymnastica deditis*, he substitutes *ασκεῖσι* (*ἐκτείνῃ*), in *iis quæ ad bonum habitum exercentur*. Lorry explains this passage differently, and applies it to those who make the gymnastic art their principal occupation, as for example, the athletes, and to those who were ambitious of attaining to that degree of strength which characterized that race. This is also the opinion of Bosquillon; and many reasons, which it were useless to specify in this place, induce me to prefer their opinion to that of Villebrune. But be this as it may, it is easy to con-

ceive, that those who devoted themselves, whether from taste or from their particular situation in society, to the constant practice of gymnastic exercises, arriving gradually at a point which is the excess of bodily strength and vigour, could not continue their ordinary exercises, without being exposed to danger; and that, in order to resume them without inconveniences, the strength thus acquired and carried to excess, must of necessity be diminished, (τὴν εὐξίαν λύνει μὲν βραδίως), in order to restore to the invigorating action of the gymnastic art, the requisite space of time for producing its effects without breaking the springs of the body, (ὡς πάλιν ἀρχὴν ἀναδείψις λαβὼν τὸ σῶμα). And, in this sense, the expression ἀναδείψις, *restoration*, is at least as intelligible as the word ἀνωπαύσις, *repose*, which Villebrune substitutes in its place.

The authority of Galen, who himself witnessed the effects of gymnastics, the authority upon which the vulgar text rests, will appear on this point equivalent to that of the manuscripts quoted in the respectable work of this learned critic. Still farther, the word ἀναδείψις appears to correspond much better than the other to the remarkable expression λύει τὴν εὐξίαν μὲν βραδίως, *to reduce quickly this excessive vigour*; which signifies, to remove it by enfeebling remedies, that substitute in its place an artificial and advantageous debility. This is the import of the word ξυμπύσις, *sinking, confidentia*, which Hippocrates afterwards adopts to express the change that must be effected, for the purpose of preventing the results of this excessive strength; a change, in accomplishing which, he also directs the application of a wise moderation, and which he wishes to be adjusted to the temperament of the patient. And soon after, he uses the word κενώσεις, *evacuations*, to which he again contrasts the term ἀναδείψις, *restorations*, or, according

ing to Villebrune, *ανανέωσις*. And, on all occasions, he recommends measures and proportions suited to the condition of the person who is brought back by these changes to a moderate degree of strength and vigour.

From this discussion it seems evident, that in this state of preternatural vigour, superinduced by the immoderate use of gymnastic exercises, physicians were obliged to weaken, and, if the expression may be used, to *sink*, or reduce, by means of proper evacuations, the person who had attained this excess of strength; and afterwards to restore him by a well concerted plan of recovery to that moderate or middle state, which alone is compatible with a permanent state of health. Hippocrates, in fact, speaks expressly to the same purpose, in the subsequent part of the passage quoted above, and in the same aphorism: *μηδὲ τὰς ἐκφυλάσας ἐς τὸ ἰσχυρὸν ἄγειν. σφαλερὸν γὰρ ἄλλ' ἰσχυρὰ ἢ ἡ φύσις ἢ τῷ πολλοῦ ἐκφυλάσσειν ἐς τὸ τοῦ ἄγειν. ὡσαύτως δὲ καὶ αἱ κινήσεις. αἱ ἐς τὸ ἰσχυρὸν ἄγειναι, σφαλεραί, καὶ πάλιν αἱ ἀναθερψίς αἱ ἐν τῷ ἰσχυρῷ ἔσθαι, σφαλεραί.* which signifies—*we must not push this debilitating process too far, for that would be dangerous; but it must be accommodated to the constitution of the person upon whom the experiment is performed. For these precautions are equally applicable to evacuations, which, carried to an extreme length, are productive of dangerous effects. And again, the process of restoration, if carried afresh to an excessive degree, would also be attended with danger.*

Galen also informs us, that wrestlers were subject to sudden accidents, as bursting of blood-vessels, and hæmorrhages; and Mercurialis quotes St. Jerome, who affirms, that they never attained to a advanced age; and who corroborates on this point the authority of Hippocrates and of Galen, adduced above. The explanation of this remarkable aphorism was certainly not a point of trivial import-

ance to the medical history of the gymnastic art. I shall not here enter into any practical details relative to this art, so much neglected in these days. One of my colleagues will without doubt have in this respect gratified the expectations of his readers in the article *gymnastics*.

CONCERNING BATHS AND REPASTS, IN THEIR RELATION
TO THE GYMNASTIC ART.

THE practice of bathing was too nearly connected with the general system of exercises, not to include places appropriated to both the one and the other, in the same establishments; an important department of the Gymnasium was assigned to baths and stoves. Among the Romans especially, much more than among the Greeks, the edifices reared for the practice of bathing were constructed with taste and magnificence; and yet public baths were not, till a very late period, established at Rome. The people were admitted into these baths upon paying a very moderate sum; and the hours in which admission was granted were regulated by the laws. Arrangements of police maintained decorum in those places; and it was not till the period of degeneracy and corruption, which prevailed under the infamous emperors, that the sexes were observed promiscuously mixed together. So predominant over the manners of nations, especially in corrupting them, is the influence of those by whom they are governed! The people imitate and despise their rulers.

The hot and tepid baths, the moist and dry stoves, (*lacum*), the cold bath, and above all, basins in which swimming might be practised, were the principal departments of the public baths; inasmuch that they served either for the purpose of cleanliness; and, in this point of view,
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the exercises themselves rendered their use indispensable; either to restore to the body the flexibility, to the fluids the liquidity, and to the pores of the skin the permeability, of which violent exercises had deprived them: or to furnish a new field of exercise, equally adapted with all the rest to strengthen the body, without exhausting it, and to put all its limbs in motion. I speak not here of any accommodations which sensuality superadded to all these useful objects of attention: the gymnastic art did not authorize these effeminate conveniences, more calculated to enervate man, than to advance his progress to perfection.

Alternation of heat and cold, produced either by successive immersions in baths of different temperature, or by the affusion of cold water upon a body, which had just quitted the hot bath, (*calida lavatio*), was one of the practices in most common use among the ancients. Hippocrates, when speaking of regimen in diseases, and even in acute disorders, adverts to the precautions which the affusion of cold water in coming out of the bath demanded, according to the different kinds of affections, to which the body had been exposed: and Galen treats of the same subject.* There was also a period at which the use of the cold bath was in general vogue; and Antonius Musa, the physician of Augustus, appears to have been the person who introduced it. Augustus, according to report, had been cured of a disease by this practice. This fashion continued; and the inhabitants of Rome boasted of the hardihood with which they immersed their bodies in the coldest water. Seneca makes it a subject of exultation, and says of himself, † *ille tantus Psycrotales, qui kalendis Januariis in Euripum salubam*. Plutarch and Galen remonstrated against the use
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* Gal. Comm. iii, in lib. de victu in acutis, c. 44, ed. de Chartier.

† Epist. 83.

of cold water, as I shall have occasion to observe in the sequel.

Swimming also was peculiarly regarded as an essential part of the education of youth; and the same importance was attached to it, as to reading or the knowledge of letters. (*Neque literas didicū, nec natare, πῶς οὐκ, πῶς ὑδάματα εὐκταται*) — *he has learned neither to read nor to swim*, was the character given of a person whom they wished to stigmatize as grossly ignorant.

The practices which followed or accompanied the use of baths were not attended to with less care than the baths themselves. Frictions, frequent manipulations, pressure upon the muscular parts and upon the joints, the form and the materials of the instruments appointed, to remove from the surface of the skin the substances which adhered to it after the bath (*strigiles*), brushes, *epilatoires*, &c. were objects of attention which physicians themselves did not overlook. And Galen, Oribasius, *Ætius*, &c. have not neglected to describe the greater part of these practices in their works. Oily inunctions, whether simple or perfumed, occupied a distinguished place among these practices; and even abstracted from their application, both during exercise and in the bath, the use of them was habitual among many persons in all conditions. Every person knows the veteran soldier's reply to Augustus, when he questioned him concerning the measures which he adopted for the preservation of his health during so long a life; (*extus oleo, intus mulso*;) *by the external application of oil, and by the internal use of sweet wine, or must*, said he: wishing to be understood as ascribing his protracted life, and his excellent health, to the use of external inunctions, which rendered him independent of the influence of vicissitudes of temperature or perspiration,

ation, and to a laxative state of his bowels, maintained by the use of the juice of the grape.

The conjunction of the various kinds of exercises with the baths, regulated the proportion and the hour of their repasts; inasmuch that the consideration of the gymnastic art alone comprehends almost the whole subject of *hygiène*. It is in fact to the use of baths generally established among the Romans, and adopted by almost every class of citizens, that the custom of making the *supper*, or the repast of the evening, the principal diet; and that of being reclined on couches, during the time employed in this repast, must be ascribed. The other diets could only be light for men who divided the day between their necessary avocations, exercise and the bath, and who were also to bathe in the evening. Considered in its relation to health, the hour of supper was equally remarkable. It corresponded, on the one hand, to the termination of business, that is, to the moment when man, fatigued with the motions of the day, had refreshed himself in the bath, where all the expedients to which he then had recourse, had facilitated and completed the cutaneous evacuations, and consequently finished the daily elutriation of the body; in short, at the moment when both soul and body enjoyed the greatest degree of liberty of which they are susceptible. At this period a reasonable forgetfulness of the cares of the day permitted a pure gaiety to exhilarate all their enjoyments, and to embellish their social intercourse with all the charms that can result from a complete exoneration from anxiety. On the other hand, the supper was followed by a long cessation from labour, and by sleep during the night. Thus does it appear, that in this order of affairs, every thing promoted the digestion of the aliment, and conspired to effect a complete reparation of the loss sustained by the body throughout the day.

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The repasts taken during the day seemed only intended to hasten with greater facility the hour of supper. They did not interrupt the usual business, and abstemious people did not pause or sit down to table on their account. Augustus, according to Suetonius, dined in his litter on a morsel of bread and a little fruit. *While returning home from the palace in my sedan, I ate an ounce of bread, with a few grapes, at Duracina: Dum lætica ex regia domum redeo panis unciam cum paucis acines uvæ Duracina comedi.** And Seneca, speaking of his dinner,† makes use of these expressions: *Panis deinde ficcus, et sine mensa prandium, post quod non sunt lavanda manus: I then take some dry bread, and dine without sitting down to table, after which there is no necessity for washing my hands.* After all, we may believe that every Roman did not restrict himself to this degree of sobriety; it is nevertheless certain, that the dinner, *prandium*, was but a light repast; and as they did not dine on coming out of the bath, during this diet they did not resume the reclined posture.

The order of the dishes during the repast was also, as among us, regulated according to custom; and this custom was not perhaps the most consonant to the principles upon which the doctrine of health ought to be established. Celsus condemns the custom of his own time, at least in as far as people of delicate stomachs were concerned; and there is a pretty strong analogy between the division of the different parts of a repast in that time, and the different courses upon our tables. The ancients, or at least the Romans, divided their repast into first and second tables or courses, (*prima et secunda mensa.*) The first course was composed of animal food and other very nutritive fare; and the second was made up of fruits and delicacies. It is of this latter part of the repast that Celsus speaks: (*Secunda mensa bono stomacho*

* Suet. Octav.

† Ib. ep. 85.

Stomacho nihil nocet, in imbecillo coacescit; si quis itaque hoc parum valet, palmulas, pomaque et similia melius primo cibo assumit): The second course is not detrimental to a sound stomach, but it is apt to cause acidity in a weak one; should any one therefore labour under a debility of this organ, he will do better to begin with dates, apples, and similar articles. Celsus, a little before, had also observed, that it is a more eligible plan to begin the repast with articles of food seasoned with salt, and with pot-herbs, and the like. *Cibus a salisamentis, oleribus, similibusque rebus, melius incipit*. And in another place, the same author remarks, *imbecillima materia est omne olus*; Pot-herbs are of all articles of food the least nutritive. He condemns then the custom of ending the repast with light aliments, the sole advantage of which is to excite appetite, or to gratify the palate.

Without inquiring in this place, how far this opinion is founded in truth, it is still worthy of remark, that the art of presenting to men fatiated with food, and already sufficiently nourished, viands which awaken extinguished appetite, and excite pleasure and desire without necessity, is treacherous and destructive. This art was cultivated among the ancients, as among ourselves: it was even carried to a degree of criminal perfection; as it appears that their second courses had a considerable resemblance to our own fricassees and deserts. However simple and light such food may be, yet if it be taken often, the concocting faculties are cloyed; it must undergo in the stomach an alteration, very different from that which proper digestion would have produced. It is this morbid change which Celsus points out by the expression *coacescit*; to which must be subjoined the alteration which Hippocrates designated by the word *naivodus*, an expression which in my opinion ought to be understood as descriptive of certain articles of food, liable to excite burning eructations,

as I think I have sufficiently proved under the article Aliment.*

An investigation respecting the modes of clothing, and head-dresses, used among the ancients, equally appertains to their customs and manners, and is no less connected with medicine, considered in its relation to the doctrine of health; but I shall have occasion to offer some reflections on this subject, in treating of the manners and customs connected with this doctrine prevalent in modern times, and when I come to institute a comparison between the various modes of dress adopted by different nations.

I might extend to a much greater length this disquisition, respecting the medical and physical history of manners and customs among the ancients; but many of the topics which might be subjoined here would have no necessary connection with public *hygiène*, and will fall to be treated of with more advantage and convenience in other articles of this Dictionary.

III. CONCERNING THE REGULATIONS CONNECTED WITH PUBLIC POLICE AMONG THE ANCIENTS.

THE only department of public police which ought to be the subject of discussion in this place, is that which relates to the healthfulness of dwellings, and, in general, to the health of men, collected in cities, in camps, in ships, &c.

The situation of cities, the direction of their buildings, and the order in which the streets should be divided, the arrangements favourable to their cleanliness, are the principal objects which claim the attention of men invested with public offices.

Ancient

* Ch. i, § 2.

Ancient history affords us a memorable instance of a city which recovered its healthfulness on changing its position. This was the city of *Salapia*, now called *Salpe*. Vitruvius informs us, that situated at first on the north-west side of a marsh called *Salapina palus*, the south-east winds conveyed to it noxious effluvia from this swamp. They removed it four miles from its former situation, to the south-east of the marsh: besides, M. Hostilius opened up a drain from the morass, towards the sea; in consequence of which, all the insalubrity which proved fatal to the inhabitants of this city entirely disappeared.

Hippocrates has devoted a great portion of his treatise on *air, water, and situation*, to observations calculated to throw light on this department of public *hygiène*. In ascertaining what must be the result of different exposures to the winds, and that of situations relative to the soil and water, he has necessarily furnished us with the elements of public *hygiène*, and laid the foundation upon which the rules or measures of police, respecting the most unexceptionable plan of arranging houses, ought to be established.

Vitruvius, who wrote in Italy, and who was one of those artists who studied architecture with the deepest attention, not only in regard to the sufficiency of the buildings, but still more in respect to their healthfulness, has left us some directions relative to the proper situation of cities. He advises that they should be built on elevated ground, at a distance from morasses. If they are situated in the vicinity of the sea, he disapproves of their facing the south or the west, or of their being exposed to the influence of hot winds. He recommends that cellars and public granaries should be placed towards the north, and observes, that a southern exposure is not favourable to their utility as store-houses for provision.

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The inspection of the entrails of animals, a monument of the most absurd superstition, ceased to be contemptible when it is applied to the purpose of ascertaining the influence of air, water, and situation, upon living creatures. Vitruvius informs us, that the ancients inspected the liver of animals, in order to judge of the nature of the water of a country, and of the salubrity of its nutritive productions. From this source they derived instruction respecting the choice of the most advantageous situations for building cities. The size and diseased condition of the liver, is in fact a pretty sure indication of the unhealthiness of pasture grounds, and of the deleterious quality of the water, which, especially when it is stagnant, produces in cows, and particularly in sheep, fatal diseases, that have often their seat in the liver; as for instance, the rot, which frequently destroys whole flocks in marshy countries. The spleen is also a viscus, very apt to be affected by these qualities; and obstructions of this organ are very common in that district of Italy in which Vitruvius wrote. He mentions two cities, situated in the immediate vicinity of one another, *Gnosius* and *Cortyna*, which were yet characterized by the following remarkable difference. In the territory of *Cortyna*, animals had a very small spleen, which, on the contrary, acquired an astonishing size in the domains of *Gnosius*.

Farther, in the cases in which the vicinity of a morass could not be avoided, Vitruvius observes, that if the morass be near the sea, or if it be situated on the north or the north-east of the city, it is much less hurtful, either on account of the saltness of the water of the sea, which communicates with it, and retards the putrefaction of animal and vegetable substances; or on account of the nature of the winds, which carry off its exhalations, and correct
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their deleterious effects, by the greater degree of coldness and dryness of the air consequent on their blowing. He also remarks, that marshes situated near the sea, but raised above its level, are less to be dreaded than others; because they can be remedied by an outlet into the sea, which can easily be effected. Now it is a remarkable circumstance, that Vitruvius observes, that for these reasons the vicinity of morasses had not rendered Aquileia, Altina, or Ravenna, insalubrious places of residence; and yet Lancisi, in the beginning of this (last) century, informs us, that Aquileia in ancient times so flourishing, so popular, and so renowned, had been entirely destroyed, and that the pestilential miasms of the marshes which had depopulated it, were the only causes to which its destruction could be ascribed. *Vix nostro ævo reliquias ædium et veteris fortune vestigia retinet, nullis aliis armis everfa, quam corrupto ex aquis hærentibus aere.** This is not the only example which Italy affords us of a physical change in its soil; and the same Lancisi observes, that the marshes of Italy are now surprisingly increased in point of number from what they were in past ages; inasmuch that cities, celebrated in ancient times, have been overwhelmed by their waters. *Nos autem in eo agimus seculo, in quo enormiter aucta sunt paludes, et eousque excreverunt, ut celeberrime quondam urbes primum innatantibus aquis obruta, dein longa oblivione sepulta, vix ac ne vix quidem nomen servaverunt posteris memorandum.†*

We are all acquainted with the care which the Roman emperors, Julius Cæsar and Augustus, took to drain the Pontine marshes, and with the very short duration of the success that attended their labours. For it appears, that their efforts at least effected a temporary completion of

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* De Nox. Palud. Effluviis, Lib. i, p. 1, c. 3.

† Ib. de Sylva Cisternæ et Serminetæ, non nisi per partes excidenda. § 23.

their object, as the following passage from Horace's Art of Poetry proves :

*Sterilisque diu palus, aptaque remis
Vicinas urbes alit, et grave sentit aratrum.*

But their works have been destroyed by the increase of the waters, as has since been the fate of the works undertaken at the command of Quintus the Sixth ; and I know not whether these directed by Pius the Sixth, in our own days, have been attended with more complete success. But be this as it may, this object is assuredly one of the most important which appertain to public *hygiène* ; and it is one of those in which the industry of modern times is in no respect inferior to the labours of the ancients.

The respect which the Ediles enjoyed among the Romans, the nature of their functions, the abundance of water conveyed into the city by the aqueducts, the remains still existing of the sewers appropriated to the preservation of cleanliness, the cemeteries everywhere situated without the walls of the cities, Cæsar's attention in creating particular Ediles, denominated *Cereales*, whose province was to watch over the preservation of corn, and the reparation of public granaries, may be adduced as so many proofs of the care exercised by the ancients about every thing which could contribute to the preservation of health,

The health of men assembled in camps, and in ships, and of armies on their march, equally excited the public attention. We know that among the provision which a soldier carried, was included, besides a quantity of rice, a bottle full of vinegar, intended to be mixed with their water, for the purpose of composing a salubrious and antiseptic drink, which the Romans denominated *Pofca*. This regimen must certainly have contributed to maintain good health among
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the troops; but there can be no doubt, that independent of military discipline, the strict observance of which was so conducive to the success of their arms, a rigorous police of health was also established in their camps. How can the fact otherwise be accounted for, that in a great number of distant expeditions, of long duration, and some of them chequered with vicissitudes of good and bad fortune, the Roman armies had not been visited with many more signal examples of destructive epidemics?

PUBLIC HYGIENE OF THE MODERN NATIONS.

LEGISLATION.

THE labours of the moderns to support establishments of public *hygiène*, are not to be found in their codes of laws; if we except the inhabitants of the east, among whom legal ablutions, a relic of Hebrew legislation, combined with the peculiar observances of the Mahometan religion, accord with the exigencies which result from the heat of the climate, and are in truth important provisions for the preservation of health. The legal prohibitions of certain articles of food correspond in a great measure to those of Moses; and the proscription of wine, a degree of perfection aimed at by one sect, only among the Jews, that of the Nazarenes, is truly a statutory prohibition among the followers of Mahomet. It is, moreover, so ill-contrived, that it is almost universally evaded; and it has given rise to another abuse, that of *opium*, the dangers of which greatly exceed in magnitude those which could ever result even from the excessive use of fermented liquors.

The laws of the Christian church ought not to be reviewed in this place; their sole object is to conduct man to a degree of moral perfection by the aid of sensible objects,

and to restrain him from excesses by abstinence and temperance. The excesses indulged in, at table especially, appeared to the church the cause of almost all others; and this conclusion is sanctioned by reason. Many of the particular institutions of the church bear a resemblance to those of Pythagoras; but it has been the fate both of the former and of the latter, that men, having their attention often more engrossed with their strict execution than with the end to the attainment of which they are subservient, and being at the same time less religious than superstitious, have exposed them to the derision of those who form their judgment from a superficial view of things, and even to the contempt of certain philosophers. It must also be allowed, that many of the dietetic customs introduced into the Christian church, have not been devised with due attention to the salubrity of certain kinds of food, and more especially are not calculated for all climates. We shall dwell still less upon monastic institutions, many of which have rather aimed at painful privations than at useful observances. The best of them are assuredly those who have banished indolence, and modified meditation by means of exercises, manual labour, and, above all, the cultivation of the soil. It is among them at least that purity of manners has been longest preserved.

It is not then in the legislation of modern nations that we must seek for the rudiments of public *hygiène*.

MANNERS AND CUSTOMS.

THE GYMNASTIC ART, AND BATHS, AND REGIMEN.

WITH regard to established institutions, to practices, and to customs, we find nothing among modern states which
corresponds

corresponds to the gymnastic schools of the ancients. Our military gymnastics themselves do not admit of a comparison with them. In these, men are calculated upon as the different points of the surface and solidity of a body, geometrically considered. They are disciplined to preserve in this body a complete order and uniformity, to act in obedience to, and as it were by the impulse of a spring, which communicates to all the parts an isochronous movement. But no attention is paid either to their safety, or strength, or perfection, as individuals; at least, there is no established practice, no existing law, which has this object for its end; and the solicitude of a few military men, more enlightened and more attentive than their brethren, the writings of some physicians, friends to humanity, are all the monuments which prove that the fate of these human victims, destined to be sacrificed to the pride and caprice of the rulers of this earth, has ever excited any share of interest.

It must however be granted, that before the invention of gunpowder, and the new system of military tactics, in which the use of gunpowder has resulted, the tournaments of chivalry, and a number of feudal extravagances, constituted a species of military gymnastics, really productive of advantageous effects. The knights of chivalry, animated by two very powerful motives, glory and love, exercised themselves in combats, where strength and agility at once triumphant, formed them for courageous enterprises, and trained up for the state brave warriors and intrepid defenders. But could it be believed that the only place in Europe at this moment, where the elements of a tolerable physical institution of this nature are to be found, is the seraglio of the Grand Sultan, in the education of the young *Isoglans*, who are destined to compose his life guards?

It were nevertheless an act of injustice to exclude from the number of gymnastic practices, the games common in our colleges. Those of the hand-ball, of tennis, of the football, of prison bars, and many others, as they stimulate self-love, by the honour of a victory due at once, to strength, to agility, and to adroitness, were invented with perfect propriety for the purpose of developing the whole muscular power of the body, of perfecting the external senses, by increasing their accuracy and precision, and of unfolding in the youth the germs of more than one sort of useful industry. The tennis resembles in many respects the game which Galen so much extols under the name of the *small ball*, *μικρά σφαίρα*.

The establishment of public baths, and the practices respecting them have not been handed down to us from antiquity. The Russians and the Turks are the only European nations among whom there are public buildings appropriated to baths. In both these nations vapour baths are chiefly used. Among the former, they flog the naked body in the bath with branches of trees; and in coming out of it, they frequently roll themselves in the snow, or immerse their bodies in cold and congealed water. The Turks soak and knead, as it were, their limbs, to increase their flexibility. The observations stated above concerning immersions or affusions of cold water on coming out of the hot bath, or from the *Spartan* (dry) stove, are sufficiently applicable to the customs established among the Russians. This alternation must both harden and strengthen the body, and, above all, render it independent of the most noxious effects of vicissitudes of temperature.

This practice brings to our recollection a custom prevalent among certain northern nations, of immersing their new-born infants in cold water or in snow. The nations
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who inhabit a milder climate, have been inclined to imitate this example; the most robust infants have resisted its effects, perhaps derived advantage from it; but the most feeble have sunk under it. It ought, moreover, to be considered, that the utility of this practice to children, who are to pass their lives in a warm or temperate climate and atmosphere, and in the midst of well-regulated cities, cannot be the same with what accrues from it to those who must live like savages, or endure almost the same degree of hardship in a frozen atmosphere, surrounded with fogs. The safest practice is, to enable them by degrees to endure the vicissitudes of the atmosphere, and bathing with cold water, but not to plunge them into it at the moment of their birth; that is, at the instant when they come out of a bath, the temperature of which always amounts to 30 degrees, Reaum. We know likewise that the same danger arising from the cold vicissitudes of the atmosphere, is so much the greater, in proportion to the heat of the climate which we inhabit; since, in America, the impression communicated by cold and moist air, and more especially the air of the sea, cooled by the breezes, is one of the most frequent causes of tetanus or locked jaw, which so often attacks new-born infants during the first weeks subsequent to their birth, and against which the only prophylactic means are to enable them to endure these vicissitudes.*

The unfrequent use which modern nations have hitherto made of baths, has established a remarkable difference between their repasts, the hours appropriated to them, the respective quantities of food consumed, and the mode of conduct adopted on these occasions, and the customs of the ancients in this respect. It would be a difficult task to

* See Dazille's Diseases of the Negroes, and his treatise on Tetanus.

point out the advantages or disadvantages resulting from this difference. Habit has become a law; and the greatest loss which we have in reality sustained in this case, consists in the proportion of exercises and the utility of baths.

I do not intend to discourse in this place concerning the choice of aliments, or the art of seasoning them. In the degree of simplicity attained in this respect, the moderns appear to have the advantage over the ancients; if we compare the state of cookery in France with that of which Appian has left us such specimens, as suppress every desire of imitation. Habit, moreover, converts into a delicate morsel what would excite the strongest nausea in a stomach unaccustomed to certain seasonings. We might quote a thousand instances of this truth in all countries and in all nations. What European would imagine that he could ever bear the caustic taste of pimento, to which nevertheless he becomes habituated after he has lived some time in our colonies, or in the Indies? Who will believe that the Persians can endure the habitual use of *assa-fetida*, more especially when he shall be informed that this fetid gum as it comes to us, by no means approaches in point of smell or taste to what it possesses in the country in which it is collected? What apparently merits a greater share of our attention is, the change which it seems must have been the effect either of certain kinds of aliments universally adopted, or of other substances, the use of which has been introduced into common life at different periods. Among these may be reckoned fermented liquors, distilled spirits, tea, coffee, chocolate, sugar. We may instance also in the use of tobacco, so universally established for more than a century, and known almost for two centuries. We are perfectly aware of the general effects which these substances produce on individuals; but it is impossible to ascertain

ascertain the changes experienced by the species in consequence of their use; and whether the lives of men have been prolonged or shortened, whether their health has been more or less permanent, since the introduction of these articles into common use. Nothing very remarkable has been observed relative to these points, if we except the fact, that the very general use of coffee, has certainly diminished the excessive indulgence in fermented liquors among a numerous class of the community.

With regard to the particular examination of different sorts of aliments or of seasonings, these are detailed at due length under their respective articles.* We ought also to attend to topography in our inquiries concerning the regimen adopted by different nations, which, in this respect, are regulated either by local circumstances, or still more by the influence of climate; the effects of which diversifying the necessities of the inhabitants, contribute to render more general the use of certain substances less universally employed among other nations. The complicated disquisition into which this view of the subject would lead us, would extend this article to too great a length.

In speaking of the customs prevalent among the ancients, I have not mentioned their vestments or dress; it is in fact among the modern customs that, in this respect, we meet with practices very repugnant to the order of nature, and the effects of which have a remarkable influence both upon health and life. The only circumstance relative to the mode of dress adopted by the ancients which deserves our notice, is, the difference between the costumes of the inhabitants of the west and north, and those of the southern and oriental nations, as well as between the dress used in war, and that worn in the time of peace. A long loose robe,

* See Aliments, &c.

robe, and only held together by a girdle, was the habit worn in peace, among all the nations of the east and of the south, even in Europe. It is still in use among the Turks, and the Russians themselves have continued to adopt this kind of dress. The dress used in war was always shorter and lighter, for the purpose of being better accommodated to promptitude of action, and to celerity of motion. On the contrary, this short dress, with some slight differences, has always been adopted in peace and war among the northern nations, as, for example, among the Gauls, the Germans, and the Scythians, a restless, active, and warlike race. In all countries, however, the women wore a long habit; and we know that among the Scythians, the men, when affected with a certain distemper, which induced impotency, (*ἄλεια ῥύος, femininus morbus*), quitted the habit of their sex, and, assuming a long dress, associated with the women, participating at the same time in their labours and employments.

One important observation, however, still remains relative to the vestments of women. Although a long habit was generally adopted by them, as characteristic of their sex, a singular difference still distinguished the garments worn by the females of the north from the dress adopted by those of the east and south. The shape of the latter was always such, that fixed to and resting upon the shoulders, it fell in a waving manner over the rest of the body, and was held together only by girdles, tied either under the breast or above the haunches. On the contrary, the habit worn in the north, had always been divided into two parts, the one covering the inferior half of the body, extending to the feet, and tied above the haunches, forming what is now denominated a *petticoat*; the other, fixed above the shoulders, supplying in a greater or less degree the place
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of a *waistcoat*, as far as the girdle, and then descending somewhat lower above the petticoat. The petticoat especially is the distinguishing characteristic of the dress worn in the north and west; and this circumstance is what confers importance on the preceding remarks.

The women, tying their petticoat above the haunches, must have held it somewhat tight to prevent its getting loose and falling. The cold forced them to wear many of these at the same time; and their haunches appeared bulky both by the number of petticoats, and by the thickness which their folds collected about the waist, necessarily occasioned in that part of the body. This thickness contrasted with the slender form of the body to the waist, has suggested the advantages and pretended charms of a fine thin shape. These advantages becoming more striking by being opposed to the extraordinary swelling of the haunches, the women have endeavoured to improve the beauty of their shape by carrying these contrasts beyond all bounds. They have not only ridiculously overloaded and swelled their haunches; they have tightened and squeezed beyond measure that part of the body which joins them. Hence, bodies of every sort of shape, in other words, those narrow moulds in which they endeavour to cast the breast and the abdomen, by compressing the bones of the thorax, and making them assume, instead of their natural form, widened at the basis, the shape of an inverted cone. Hence compression of the viscera, and a thousand other evils, which will be considered under other articles of this Dictionary.

The bodies of infants were soon subjected to these absurd and pernicious experiments, their parents being solicitous that their delicate breasts should grow in moulds which would have imparted to them forms disavowed by nature. People thus persuaded themselves that the body
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of an infant required these preternatural supports, and deceived by the weakness which their children contracted from the use of these fatal machines, mothers have accused nature, conceived that they might rectify her errors, enfeebled her resources, for the purpose of enjoying the unfortunate privilege of supplying them. No creature, however, enjoys a greater degree of strength and of firmness than the infant whose powers of body are permitted to unfold themselves without restriction or constraint. All his muscles exercised in balancing his body, and in maintaining an equilibrium, early acquire the necessary bulk, and that habit of action by which they are strengthened. Whilst in the infant, constantly propt and kept in an inflexible sheath, the same muscles remaining in a state of preternatural inaction, acquire neither the strength nor the volume which they ought to possess, and the infant bends and totters whenever he ceases to be thus supported. We have been of opinion, that these fatal precautions must have immediately involved their abettors in a successive train of errors; and the clothes in which the new born infants were swathed, have rendered them a species of immovable mummies from the moment of their birth, whose piercing and woful cries in vain protest against the injuries inflicted on nature. It was in vain, that when it became necessary to relieve them from these shackles for the purpose of removing their ordure, they testified by their joy and tranquillity the horror with which this barbarous custom inspired them. Prejudice, equally insensible to the expression of their pleasure as to that of their sufferings, hastened to abridge their happiness, by consigning them again immediately to these painful bonds. They stifled their renovated cries by rocking their cradles; and sleep induced by the uniformity of motion, or silence rendered necessary by the inutility of complaint,

complaint, imposed at last upon the mother, under the false appearance of a deceitful calm.

Physicians to no purpose expostulated against these abuses. It was necessary that they should be assailed by the authoritative voice of a man, who could clothe the cold deductions of reason in new language, whose energetic reproaches put stupidity itself to the blush; and who knew to confound man by contrasting his conduct with the dictates of nature. Less anxious than physicians to inculcate, to demonstrate, and to convince, Rousseau knew to command and to insure obedience. He was moreover acquainted with the method of restoring women to a just sense of that very affecting duty, which they had almost invariably intrusted to mercenary nurses, by demonstrating to them what real charms adorn a mother who opens her bosom to her infant, and who does not deprive him of that aliment which nature prepares for him. He thus restored our bodies to their liberty, and mothers to their duty. Philosophy triumphed over vanity. Let it, however, be observed, to the glory of his eloquence, but to the shame of humanity, that for this triumph she is more indebted to enthusiasm than to reason.

In truth, the Frenchman, too lively to pause immediately on obtaining his end, too headstrong to recognize the measures of wisdom with sufficient promptitude, has exaggerated (and, alas! what has he not exaggerated!) the precepts of the philosopher. Mistaking the force of the impulse, which it was necessary to communicate to him, for the purpose of making him desert established habits, he abandoned himself to the contrary excesses without restraint. He believed that a young and tender infant, still warm and moist from his mother's womb, might be treated like a hardy soldier, inured to the frosts of winter, and to the scorching

scorching rays of a summer's sun : in this respect, he even forgot the instructions communicated by the brute creation itself. He was equally mistaken both in regard to his mind and body ; he confounded licentiousness with liberty ; he abandoned his pupil instead of directing him ; and above all, he was not aware that a child, prone to imitation, receives the rudiments of his education from example ; and that we must not expect that the person who is a constant eye-witness of every error and of every vice, should make any progress in virtue or in wisdom. This celebrated revolution has at least resulted in one consolatory truth ; we learn from it that the roots of prejudices are not always so deeply fixed as is apprehended.

In respect to the inhabitants of the east and of the west, of the north and of the south, the coverings of the head exhibit differences sufficiently remarkable, and accordant with the differences observed between their respective dresses. The natives of the south and of the east of Europe, and of Asia, in general, have had and still have the head habitually covered. They even proceed the length of cutting off the hair with which nature furnished them, for the purpose of substituting in its place caps and turbans. Those of the north and east have either had the head uncovered, or have covered it only occasionally. Our hats, which fashion had introduced a long period before we availed ourselves of their use, are now worn only occasionally, and, in general, we lay them aside in the house. The Turks and Arabs, on the contrary, wear their head-dress without intermission. The *tiara* and *mitre* of the Medes, were also habitually worn among the ancients, although these nations had preserved their hair. The Phrygian cap continued always in vogue, whilst the Grecians went with the heads uncovered. Amongst the Romans, the inhabitants of the
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city, even under the most scorching rays of the sun, covered their heads only with a flappet of their clothes; the peasants alone used a head-dress; and in the city, the cap, which among us has become the emblem of liberty, was at Rome the distinguishing badge of slavery. Perhaps the very practice of placing a cap upon the head of a pike, to signalize the epocha of national deliverance, in reality represents only the trophy of recovered freedom, and was invented for the sole purpose of representing the destruction of slavery, the symbol of which was the cap, by the courage and power of arms, denoted by the pike.

In instituting a comparison between the Greeks and Romans, the founders of the liberty of Europe, and nations living under the yoke of despotism, they pretended to characterize the difference between their governments, by the most marked distinctions between their fashions and customs. But, independent of political considerations, it appears that, in general, men have experienced a more urgent necessity of protecting the head from the rays of a burning sun, than from the impressions of cold and frost. This difference is also to be observed in the contrast which Xenophon draws between the customs of the Medes in this respect, and those of the Persians, who inhabited a wild and mountainous country. With regard to the effects which the difference of these customs must have produced on the body, and particularly on the head, this is not the place to give a full estimate of them. The remark of Hippocrates upon the difference observed between the skulls of the Egyptians, and those of the Persians, slain in a battle, is well known. The heads of the Egyptians, accustomed from their infancy to endure the heat of the sun with their heads naked and shaven, presented harder and thicker skulls than

than the heads of the Persians, habituated to have that part of the body defended with thick coverings.

The custom of shaving the head, in the most considerable number of these countries, in which they are in the habit of decking it with a splendid apparatus of coverings, is perhaps to be ascribed to cleanliness, and to the desire of saving trouble, than to any other cause, among nations extremely attentive to their beard; whilst among the nations of Europe, the interests of the beard have been generally sacrificed to those of the hair.

We might indulge here in a short discussion concerning the remnant of a custom, for a long period adopted by the Europeans, viz. that of kneading the hair with mutton suet and starch, formed into an impervious mass, with which they covered the hairy scalp. A description of this nature appears applicable only to the Hottentots; and yet this is what all of us have observed upon the heads of our fathers and even upon our own. We are still converts to the utility of besmearing our hair with tallow, and of powdering it with starch; and the thick layer of it which is collected in their interstices, appears to us an aliment adapted to promote their growth and preservation. The copious perspiration which exhales from the head, throughout the whole extent of the hairs, is doubtless considered as an useless evacuation; and as (by a law of our organization, and by the supplies which provident nature appears to have prepared for the purpose of indemnifying our errors) habit lessens the inconveniencies arising from any custom, we believe that nature has willed the necessities which we ourselves have occasioned. We do not consider that neither the ancients, nor the inhabitants of the east, ever adopted this custom; although their women were equally careful of their hair, as constituting one of the ornaments most conducive

conducive to their beauty. Their most industrious research led only to the use of perfumes, and to the application of volatile oils, in order to give pliancy to their hair, never to the kneading of it with unctuous substances. In our days, however, those absurd customs begin to go into desuetude; thanks to the predominant influence of fashion: for let us not deceive ourselves, but candidly acknowledge, that to fashion reason is frequently indebted for her triumphs.

POLICE, RELATIVE TO PUBLIC HEALTH.

THE attention with which governments watch over different objects connected with public health, is perhaps one of those points, relative to which modern nations can bear the most advantageous comparison with the ancients.

LAZARETTOS, HOSPITALS, AND PROPHYLACTIC MEASURES.

ONE of the most important articles of public police is to guard against the introduction of contagious diseases. The lazarettoes established in the sea-ports of the Mediterranean, for subjecting merchantmen to the tests of a quarantine, have protected Europe from a plague which periodically rages on the east and south coasts of that sea; and the contagious attacks of which have, on different occasions, depopulated Marseilles, Messina, Naples, and Rome. The quarter of the Franks at Constantinople is, by a strict prohibition of intercourse with the infected, very generally preserved from this disastrous malady; whilst the Turk, lulled into a false security by his belief in the doctrine of predestination, suffers his brethren to be cut off, and dies himself, the victim of his blindness. It thus appears, that sequestration or seclusion of the infected, is the only pre-

servative measure to which the public police can have recourse, to ward off pestilential contagion: The managers of the lazaretto of Marseilles have published a detail of their labours, to accomplish this purpose. In the 17th century, Cardinal *Gastaldi* printed a voluminous work on the means employed at Rome to arrest the progress of the plague in 1656; which, imported from Sardinia into Italy, spread its ravages to Naples, to Civita-Vecchia, and to Rome. This curious and interesting work, concerning public police, is intitled, *Hieronym...Cardinalis Gastaldi...tractatus de avertenda et profliganda peste, politico-legalis, et lucubratus tempore quo ipse lamocomiorum primo, mox sanitatis commissarius generalis fuit, peste urbem invadente anno 1656-7, ac nuperrime Goritiam depopulante, typis commissus.** This work is now scarce, and deserves to be consulted, both because the plague, which the author describes, has not found a place in the collection concerning the plague of Marseilles, published by *Chicoyneau*, and because it also contains a more complete enumeration of the contagious diseases, which in different ages have ravaged the earth, and have been characterized under the name of plagues, than this last performance. The collection of *Chicoyneau* is also a body of information on public police. The second part of it comprehends the principles, illustrated at considerable length. When we consider how seldom the plague has invaded christian Europe since 1720, compared with the frequency of its visits previous to that epocha, we must admit the importance and success of this department of public police, and acquiesce in the utility of lazarettoes, built for the purpose of defence against the inroads of contagion.

The establishments, which have for their object security against the plague, much too modern, if we consider

* In fol. Bononiæ 1684, e Camerali typographia manoleffianâ.

sider the number of contagious distempers of this kind which have desolated Europe, and the universe in general, bring to our recollection a more ancient institution, of which no traces now remain, because the plague against which it was directed has disappeared in Europe; that of hospitals, for the reception of patients afflicted with the leprosy. The crusades had introduced leprosy into Europe; and the prejudice concerning the contagious nature of the disease, induced the custom of secluding those unfortunate persons who had been attacked by it, and of assembling them together in hospitals built for that purpose. This malady has disappeared, more perhaps because the climate was not favourable to its generation, than in consequence of the precautions employed for resisting its propagation. In fact, it is well known that, in our climate at least, this disease is in no instance contagious.† But be this as it may, this institution of hospitals, for the reception of lepers, has partly, at least, given birth to our modern hospitals; concerning the utility of which, no reasonable doubt could ever have existed, if it had fortunately occurred to their founders, that the more extensive these establishments are, the more odious they in reality appear; and if the ambition of exhibiting to the view of superficial travellers an enormous mass, bearing the resemblance of national benevolence, had not made them lose sight of the true method of rendering them useful, and of carrying their administration to perfection. These defects are however perceived; and the measures already suggested in every part by able physicians, will without doubt be carried into immediate execution.

These great hospitals will be divided, houses of recep-

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† See foot-note, p. 273. TRANA

tion will be formed, and as many as possible of the destitute sick will be accommodated in private habitations: The former will be built upon a scale only sufficiently extensive to afford salutary accommodation to the poor belonging to each district, or to those who labour under diseases, the treatment of which requires means of relief, which can only be administered in public establishments: the latter, appropriated to the poor, whose habitations are too unhealthy, or too incommodious, will be proportioned to the population of those limited wards or departments to which they shall be destined. In short, all the poor who can be relieved or attended to in these, will be sent neither to the hospitals nor to the houses of reception. We shall then be enabled to organize a system for the relief of the poor, which will be truly conducive to the preservation of their health, and of subjecting it to an administration planned upon principles of real utility. Whatever apparent profusion the greatest number of the hospitals established in this country may indicate, there is scarcely any of them which is not extremely defective in regard to economical management, to the administration of remedies, and of the means of relief, or to the salubrity of their local situations.

In Italy, above all in Spain, all these accommodations are united, and, it may even be affirmed, carried to an unreasonable degree of superfluity. In these places, lazy indigence finds an asylum, which is favourable to its uselessness. The hospitals in Vienna, and above all those established in England, have been highly celebrated. The day will undoubtedly come when we shall have nothing to envy them on this account. Already, as far as houses of reception and lodgments for the poor are concerned, useful and valuable establishments have been erected, and
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stand as honourable monuments of the humanity of Frenchmen. The success with which the labours of a very respectable and interesting society, long known under the name of *Charité maternelle*, have been crowned, is well known: could it again be established among us, the bonds of the most sacred of connections might then be straitened; and by soothing the sorrows of the mothers, and rendering their fruitfulness a blessing to them, citizens might be preserved for the country.

This respectable association had the merit of saving a great number of infants, whom corruption of morals, misfortune, or shame, had accumulated in the foundling hospitals, and almost all of whom were there exposed to inevitable death. It was during the same period that the vigilance of our magistrates was occupied on a grand experiment, the result of which, although unfavourable, taught us at least this important truth, that the rearing of infants by spoon-meat, or artificial nursing, is, upon a great establishment, impracticable; since the condition most essential to the success of this difficult operation is wanting, the immediate communication between the mother and her child, and that species of incubation, which supplies a portion of animal heat, necessary to the newborn child in the earliest stages of the action of its pulmonary organs. This truly patriotic experiment has taught us the difference between artificial nursing, successfully practised in private houses, in the hands, upon the knees, and even in the bosoms of parents, and the same mode of nursing, ineffectually attempted, although apparently under all the conditions necessary to its success, upon children collected together, committed to the charge of women, all whose care and attention were necessarily limited solely to the object of watching the infants in their cradles, and

of distributing to them, with precision and regularity, the food considered most suitable to their age. How ought this fact to give double force to our gratitude, to the founders of a society, which had for its object to protect the virtues of mothers, and the lives of their children.

It was also during the same period that establishments were formed for the treatment of children who were supposed to be born infected with the consequences of a crime, which ought not at least to involve innocence in disgrace. It was an object well worthy of the curiosity of men who devoted their time to the preservation and restoration of health, that the experiment made on a grand scale, proves the possibility of conveying both the aliment and the remedy at the same time from the breast of an infected nurse to the body of a diseased child.

In such enterprizes, the failure of success does not sanction reproach, and ought not to damp our zeal. It is only among those who meditate much upon the interests of humanity, that its real benefactors are to be found.

But this age, in disputing with those that are past the palm of discoveries useful to the preservation of man, will be able to record in the catalogue of its own, the art of preserving whole generations from one of the most destructive scourges of population, that of the small-pox. *Inoculation*, practised from a remote period for the preservation of beauty, among a barbarous nation, with whom beauty was an article of commerce, soon appeared worthy of the attention of philosophers, and of the investigation of physicians. A woman of real courage, and whose genius and character were even superior to her charms, *Lady Wortley Montague*, herself, submitted to the experiment:† her child-

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† This assertion is not well founded. Lady Mary Wortley Montague herself submitted to no such experiment. TRANSLATOR.

ren followed her example. She perceived, in the success consequent on her trial, the safety of her own country, and the advantages resulting to the whole of Europe. One fortunate experiment struck with astonishment the minds of all her contemporaries, surmounted every objection, and silenced every prejudice, *dux femina facti*. Other writers will sufficiently unfold, and with much greater ability than I possess, the history of this celebrated experiment. They will speak of the establishment of an hospital for inoculating the poor in London about the year 1750; of the introduction of inoculation into the foundling hospital of the same city, of the measures adopted in the military school of France for inoculating the pupils: they will record the rules of the inoculating society of Chester; they will celebrate this operation practised on many thousand individuals in entire villages of Franche-Comté, by the courageous Girod, whom the inhabitants of that country, rescued for a long period from the scourge of the small pox, still regret and revere as their common father. And while they render thanks to heaven, that free and enlightened nations voluntarily embrace this voluntary practice, they will also extol the happy exercise of an absolute sovereignty over nations still sunk in ignorance and stupidity, by recording the means employed by Catherine II, for the purpose of conferring this inestimable benefit upon the nations subjected to her sway. The sceptre of despotism wielded by beneficent hands, sometimes ceases to be the scourge of humanity.

CONCERNING PRISONS AND WORKHOUSES.

PRISONS, as well as hospitals, in collecting together a great number of men, collect also and evolve most active causes of mortality. The story of the *affizes at Oxford*,

and of the *black hole at Calcutta*, has been recorded a thousand times. And a short time before the era of the revolution, we witnessed similar disasters in the prison of the smugglers in the city of *Orleans*. The necessary attention to the preservation of health is, therefore, a debt due from society, not less to the man accused or guilty, than to him who is infirm and indigent. Prisons and hospitals have excited the active solicitude of one of the most celebrated friends of humanity; of one of the first citizens of the world, of the respectable and venerable *Howard*. The only man, perhaps, since the beginning of time, who travelled, not to withdraw his attention from the cares of life, not to admire the monuments of art, or to enjoy the contemplation of nature in her diversified attire, not to study governments, or to pry into their secret transactions, not to obtain any personal interest or advantage; but solely for the benefit of humanity, to visit the abodes of affliction and of misery, and to place before the eyes of men a picture of the various means by which they have multiplied the calamities of their fellow-creatures, and of the measures which they ought to have adopted for the purpose of increasing their happiness. What a noble example given by one man to the universe! The system of prisons is still more remote from perfection than that of hospitals. Societies of learned men amongst us have however published to the world excellent reflections relative to both these departments, which, were it not for the unhappy aspect of the times, would undoubtedly have enlightened the solicitude of governments.

More fortunate than *Howard*, and not less the friend of humanity, the respectable *Benjamin Thomson* (*Count Rumford*), has witnessed charitable establishments, formed under his eye in Bavaria, the offspring of his care and attention,

tion, in which every thing that can render men happy, and healthy, and good, is submitted to the strictest calculation, and to the test of the most demonstrative experience. There, in one of the countries of Europe, where mendicity debased and degraded man to the lowest pitch of depravity, both with respect to his moral dispositions and to his physical constitution; he devised means of restoring the idle to labour, the man sunk in depravity to virtue, the indigent to the conveniences of life and to happiness. There the beggar, rescued from sloth, from uselessness, from filth, from vice, and from contempt, blesses his benefactor, happy in the enjoyment of life, in being indebted for it to his labour, and in receiving salutary food, without humiliation and without remorse.

CONCERNING THE HEALTHFULNESS OF CITIES, OF CAMPS,
OF SHIPS; CONCERNING COLONIES, DRAINING, &c.

WHEREVER men are collected together, it is necessary to superintend the healthfulness of the inclosures within which they are assembled. Public places, temples, apartments for public shows, camps, ships, cities, ought at all times to excite this watchful attention. *Hales* gave the first model of ventilators, adapted to renew the current of the air by accelerating its motions. These instruments have been employed both on board of ships, and on different other occasions. They have also been constructed in various ways. But the theory of fire, now better understood, has furnished still more efficacious means of accomplishing the same end; and in exhausting the virulent effects of filth, either in public sewers or in private habitations, the joint operation of these two agents has proved advantageous in obviating the danger of noxious exhalations,

ations, and the offensiveness of an infectious odour. But the salubrity of buildings chiefly depends upon the art of constructing them, so as to afford to the air access and egress without obstruction. The healthfulness of great cities must also frequently result from the art of arranging the direction of the streets, of fixing the situation of places of public resort, and of maintaining a free circulation of air.

Let us not hesitate to render justice to men to whom we are indebted for the precious gift of pure and free air, although, yielding to the force of circumstances, they have fled from their agitated country. Let us never forget that we owe to the *Baron de Breteuil* the liberty of bridges and quays, upon a river which conveys fertility and abundance into one of the finest cities in Europe; that it was under his administration, fruitful in grand and useful undertakings, that the *minister of police*, converted under our eyes, a foul cemetery, a loathsome charnel house, teeming with all the afflictive attributes of destruction, into a spacious place, accessible to an active intercourse, and exposed to a salubrious atmosphere; that in spite of the apprehensions and remonstrances of the prejudiced, so many thousands of dead bodies were dug up, without accident, without tumult, and with the greatest decency; that the motions of a great population were not interrupted by it, or their eyes offended with any afflicting spectacle, nor the public health threatened with any alarming disaster; and that, in the midst of this irksome labour, the eye of the curious observer could still with security penetrate the mysteries of nature, in the slow destruction of beings, and could draw from thence interesting knowledge concerning those transmutations, whose products will perhaps, at a future period, pave the way to useful discoveries.

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The health of soldiers collected in camps, of sailors assembled in ships, has given birth to many useful works; and the observations of Pringle on this subject have acquired very great celebrity. *Lind*, *Poissonnier*, and *Pringle*, have enlightened navigators by their observations and theories, concerning the regimen of sailors; whilst the immortal *Cook* has experimentally proved what success may result from these rules, practised with understanding; and, in this respect, has exhibited to Europe a new example, by bringing back, from a long and perilous voyage, the whole crews of three ships, with the loss only of one man, whom the unconfirmed state of his health, at his departure, had already threatened with the near approach of death.

Respectable works have instructed the Europeans concerning the method of escaping the dangers which await them in their colonies, situated in those burning climates, where the thirst of gold has prompted them to endure the influences of an unfriendly atmosphere. The terror inspired by the most destructive maladies, would have expelled them from these countries on their first establishment in them, if avarice had not been insensible to the fear of death. But more especially was it necessary to instruct them in the art of preserving the health of those unfortunate slaves, whom they condemn to moisten, with their sweat, a foreign land, fertilized by their labours only for their masters. *Le C. Dazille* is one of those who have executed this last task with the greatest success, in his observations on tetanus, and the diseases of negroes: and the colonies are indebted to him for the preservation of many of their inhabitants. But all these labours reflect more honour upon the spirit of humanity, and upon the talents of some respectable individuals, than upon the vigilant attention of governments. It is only public works, and
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useful acts of legislation, such as these, that can confer honour on administration.

The voice of philosophy and of learned men, was for a long period heard, in almost every country, before the beneficent hands of their rulers were observed pouring consolation into the bosom of the wretched. The works of *Lancisi* had existed for a long time before the rest of Europe had conceived the vast utility of removing from the environs of cities, and of populous places of abode, those *foci* of dangerous emanations; whence spring *malignant intermittent fevers*, a class of diseases almost as destructive, perhaps more insidious, than the plague itself. It was however at the solicitation of the Italian government, that this celebrated physician composed his treatises, collected together under the title of *De Noxiis paludum effluviis*; and his remarkable dissertation *De sylva Sermineta non nisi per partem excidenda*. The operations in the Pontine marshes directed by *Sextus V.*, and the work of *Cardinal Gualdi*, already quoted, also prove, that it was in Italy that works of this nature, so essentially connected with the health of the citizens, first became objects of special attention to government. It is, however, only in our own days that the works necessary to change the influence and temperature of a country, which for a long period had remained unhealthy, and overspread with swamps, have been executed in the neighbourhood of Rochefort; and Europe, as well as France, still exhibit great tracts of country covered with noxious and useless morasses. In Piedmont and in the Milanese, government framed laws for removing the rice fields from the great cities, justly apprehensive that their exhalations prove injurious to the inhabitants of these cities; and struck with the dismal spectacle of the diseases, which crush the unfortunate cultivators of rice,

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and cut them off in the meridian of life, it occurred to the rulers of that country to examine, whether there be any means of multiplying this valuable food at less expence, and without sacrificing forty years of the lives of a numerous population to the object of rearing it to maturity, and of housing it.

It is on your account, ye inhabitants of cities, that such sacrifices are made! It is around you that all the solitudes of governments rally, to avert from you every species of noxious influence! It is for you that so much labour is bestowed on the improvement of the public roads; it is for your convenience that spacious and salubrious walks are formed; and that those deep reservoirs in which your inanimate remains suffer decomposition, are removed from your sight. It is moreover for your use, that artificial sewers, more commodious than the hut of the poor, are dug; and that pipes, destined to pour forth salubrious water, are erected at a vast expence, whether you are indebted for their construction to the vigilance of your magistrates, or to the active industry of your fellow citizens. In short, it is in the midst of you that the subject of *hygiène* is in reality studied and reduced to practice; and yet, with this difference, to which we are no longer permitted to ascribe the defects of an obsolete regimen; with this difference, I say, that the districts where the groans of misery are heard, or to which painful and laborious industry resorts for shelter, seem forgotten and abandoned, whilst the most superfluous assiduities accumulate round opulence and effeminacy. In vain have we witnessed the most unexpected instances of the vicissitudes of fortune. Every thing around us has experienced a change, except our insensibility to the distresses of the unhappy. Let the indigent then avail themselves of their liberty, not to abandon themselves

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to the blind and tumultuous excesses of an unprofitable fury; not to avenge themselves of the neglect which they suffer, by spreading ruin around them; but in a manly and lofty tone, to claim that care and attention which are due to them; to point out in the vicinity of the sumptuous edifices of an opulent city, the nuisance of a muddy turbid river,* which circulates in the midst of their asylums, and whose course might be usefully altered, its pure water, and the advantages derived from it, not contaminated by noxious miasms; and without any other trouble than that of appropriating to this useful object, treasures, so often prodigally squandered for the accomplishment of culpable purposes.

HISTORY OF PRIVATE HYGIENE.

CONCERNING HYGIENE BEFORE THE ERA OF HIPPOCRATES.

PRIVATE *hygiène* is that which ascertains, by means of rules deduced from observation, how far a man, anxious to preserve his health, ought, according to his age, his constitution, and the circumstances in which he is placed, to avail himself of the use of those objects with which he is surrounded, and of his appropriate powers, whether for the purpose of supplying his wants, or of gratifying his pleasures.

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* The *Bievre* at Paris is in the sections of the Gobelins, and of the botanic garden. The Society of Medicine has composed a treatise on this subject, in the sequel of its memoirs for 1789.

These rules are either general, and deduced from the universal laws of the animal economy, and of its relations with surrounding objects; or particular and referable, either to the different constitutions of individuals, or to the diversity of things accommodated to their use.

In the history of this branch of *hygiène*, I do not propose to give a fuller or less complete list of the authors who have treated of it; my sole object is to delineate a sketch of the progress which the science has gradually made by the aid of observation. The general history of medicine, consigned to an abler pen than mine, will exhibit, under the chronology of authors, a table, of which any that I could offer in this place would be only an extract.

It is in the works of Hippocrates, or in those which are ascribed to him, and whose authors were either contemporary with, or flourished a very short time prior or posterior to, the father of medicine, that we recognize the first rudiments and first precepts of the art of preserving health.

But before the existence of the art, men had been instructed by the progress of observation; and this progress is attested to us in the writings of ancient authors.

Moses, in his history of the world, has described the different substances which man successively included in the range of alimentary matter. He represents him as at first faithful to reason, then transgressing the rules which it prescribes; obedient to the laws of necessity, but yielding to the charms of pleasure with too faint a resistance; satisfying his hunger with the fruits with which the trees in a happy climate abundantly supplied him; then with the herbs and corn which he obtained from a more avaricious earth as the reward of his labours, with the milk of his flocks, and, finally, with their flesh; subjecting also the
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juices of vegetables to the process of fermentation, and extracting from them liquors, which recruit his exhausted strength, but which, when indulged in to excess, intoxicate and deprive him of his reason. He exhibits to us the duration of his life, diminishing in proportion as he created to himself new wants; and the necessity of having recourse to a mixture of aliments, derived from both the vegetable and animal kingdoms, and to a more numerous class of different substances for his support, become more urgent, whilst his vital powers decrease daily in vigour. He points out to us his constitution at once undermined by his crimes, perpetuating an hereditary debility in his race, and the excesses of fathers affixing the seal of destruction even to their posterity. In truth, the longevity of certain hermits, who recurring to a vegetable diet, and to the strictest temperance, have exceeded the ordinary term of human life; and the example of the celebrated Cornaro, seem to demonstrate, that by transgressing the boundaries of real want, and yielding to the sollicitations of pleasure, man has actually abridged the duration of his life.

Nature has attached pleasure to want; but the former of these guides almost always decoys her followers to a greater distance from the right path than the latter. Reason has been given us for the purpose of adjusting the quarrel between them; but man, who has once acknowledged the supremacy of pleasure, recognizes with difficulty the exact province of reason: he has deserted the tree of life, and he is no longer permitted to gather its fruits.

The hieroglyphics of Egypt, where Moses was brought up and educated, and the fables of Greece, suggest to us the idea of their common origin, and of the simplest vegetable diet always characteristic of the earliest ages of the world; of different preparations perverting, in the course
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of time, the simplicity of the primeval modes of living; and finally, of man assailing the lives of the lower animals, and devouring their flesh for the purpose of supporting his own existence.

According to Dr. Mackenzie,* the different species of aliments were introduced into use in the following order of succession: fruits, corns, culinary plants, bread, milk, fish, flesh, wine, beer. This last beverage, according to Herodotus, was invented by the Egyptians; and it seems to have been described by Moses at an earlier period, since in many passages of Leviticus† and of Numbers,‡ this legislator makes mention of other intoxicating liquors besides wine, which are expressed in the Greek text of the Septuagint by the word *οινος*, the root of which is Hebraic, and signifies *to intoxicate*. To these kinds of aliments must be subjoined, butter, honey, olive oil, eggs, and cheese.

These early inventions were soon followed by more complicated preparations, according as sensuality awakened, or as necessity obliged mankind, to measure the resistance of the food which was to undergo the assimilating process, by the diminished activity of their enfeebled organs. In this manner does Hippocrates, with an able and correct pencil, sketch in his treatise concerning the ancient state of medicine, (*περὶ ἀρχαίων ἰατρικῆς*), the history of the improvements successively bestowed upon aliments; and points out to his readers, man, taught as much by pain as by pleasure, to choose, to prepare, and to transform the different substances which serve him for nourishment, and thus detecting, in his experience, the first elements of the doctrine of health and of medicine. In fact, if with Moses we admit

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* History of Health, ch. 3.

† Ch. xv, 9.

‡ Ch. vi, 3.

the hereditary debility of the human body from the abuse of enjoyments, we may conceive, that a nourishment, at first salutary, afterwards became too coarse for his debilitated organs; an uneasy sensation thus became instrumental in ascertaining the measure and modifications of regimen. *For, observes Hippocrates, you cannot find any measure, any balance, or any other calculation, to which you may appeal with more certainty, than to the sensations themselves which the body experiences.* — μίτρον δὲ, ὑδὶ σωθῆναι, ὑδα ἀριθμῶν, ὕδνα ἄλλον πρὸς οὐδ' ἀναψίγειν εἶναι, τὸ ἀκριβὲς, ὅτε ἂν σωθῆις ἀλλὰ ἢ τῷ σώματος τῷ αἰσθῆσιν.*

If these sensations had been sufficient to establish the rules of regimen, there would have been no occasion for the interference of art. *For, as Hippocrates again remarks, where no person is ignorant, and where every person is instructed either by custom or by necessity, no person can with propriety be designated an artist.†* The wants, the errors, and the infirmities of men, however increasing, observations accumulating, and tradition becoming inadequate to the task of collecting and transmitting them to posterity, art arose, and its necessity was recognized. In proof of its reality, Hippocrates quotes the case of the gymnastic physicians; *who daily, he observes, make new observations on the aliment and drink, which procure to the body an increase of strength and of vigour.‡*

The study of regimen had been carried to an excessive degree of refinement prior to the era of Hippocrates, since Herodotus observes of the Egyptians, *that having believed themselves to have detected, that the greatest number of diseases originate in the abuse of aliment; they took care every month to devote*

* L. C. edit. de Van-der-Linden, § 16.

† Ib. § 9.

‡ Ib.

devote three successive days to vomiting and purging themselves, by the use of chylsters, in order to preserve their health. — Συεμαζυνοί τρεῖς ἡμέρας ἐπιτεῖς ρυτίδς ἰάτροι, ἡμίτουσι θαλάσσιοι τὴν ὑγίαν καὶ κλύσμασι, πορρίζοντες ἀπὸ τῶν τριφορτῶν σιτίασι πᾶσας τὰς νόσους τοῖσι ἀνθρώποισι, γίνισθαι. ||

This practice of vomiting, which was denominated *syrmaïsmi*, (*συρμαΐσμος*), was introduced among the Romans; but rather from the view of its subserviency to the gratifications of the table, than from its tendency to promote health. And it appears from many passages of Hippocrates, that, in his time, the Greeks had occasional recourse to gentle means of exciting vomiting, and of evacuating the stomach. But Herodotus, like a man of sound judgment, after having observed that the Egyptians were the healthiest men in Africa, ascribes this advantage less to these practices, than to the uniformity of temperature in their climates, where, he observes, the seasons are not subject to any vicissitudes. Independent of all this, and although the regimen introduced by Pythagoras, and the institutions of Lycurgus, had preceded the age of Hippocrates and of Plato by a long series of years; although *Iccus*, a physician of Tarentum, had, some years before, recommended the union of the gymnastic art with the most temperate regimen, for the preservation of health; although this last physician acquired sufficient reputation to render *the diet of Iccus* a proverbial expression, to signify a very temperate and simple repast,* Plato still ascribes the invention of medicinal gymnastics to Herodicus; and Hippocrates assumes to himself the honour of having determined with precision, the proportions of regimen, either for invalids or for people

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|| Euterpe, Glasgow edit. § 77.

* See Steph. of Byzant. quoted by Mackenzie in his History of Health.

in the full enjoyment of health. Hippocrates' claim to this improvement may be found asserted in the first and third books of his treatise *on the Regimen of People in Health*; and in that intitled, *concerning the Regimen in acute Diseases*.

In this latter performance, Hippocrates expressly observes, *that the ancients left nothing in writing on diet which deserves being mentioned; and that they have passed over this important article in silence.* — *ἀπὸς ἡδὲ περὶ τῆς διαίτης οἱ ἀρχαῖοι ἐσιγέγραπται, ἔδει ἄξιον λόγου, καίτοι μύθῳ τῷτο παρῆσαν.* In the first book on diet, the author of that book begins by pointing out how many *defiderata* the works of the ancients leave unsupplied on this subject; and he adds at the end of his preface, *I shall explain what none of my predecessors have attempted to demonstrate.* — *ἔπειτα δὲ μὲν ἐπιχειρήσει μὲν οὖν τῶν προτιγῶν δηλῶσαι, ἐγὼ ἐπιδείξω, καὶ ταῦτα ἕκαστα ἐστὶ.* He afterwards more particularly assumes to himself, the merit of having determined the times, and the symptoms, which precede derangement of health, and the means of preventing the consequences by the respective proportion of food and of exercise.† He constantly represents himself as the author of those inventions in the third book, where speaking of the combination of exercises with aliment, and of their utility for preventing diseases, in those cases in which health becomes precarious, he adds, *in those cases, our object must not be to preserve health by the agency of remedies; and I myself am the person who in these discoveries has made the nearest approach to the true end; but none has yet exactly attained it.* — *ἔτι δ' αὖτε οὐδ' ἀπὸ τῶν φαρμάκων δύναται ὑγιαίνειν. ἢ μὲν ἐν δυνατόν ἐρευνῆται ἕως ἡμεῶν ὅθεν ἡμεῖς εὕρηται τὸ δὲ ἀκριβὲς ἔστιν.*‡ And, in the sequel of the same book, while

† Ibid. § iv, ed. de Van-der-Linden.

‡ Lib. de Dieta, § i.

while proceeding to the second part of his subject, speaking of the same discoveries, he farther observes, *with regard to this invention; honourable to me who am its author, useful for those who are instructed in it, and to which none of my predecessors have even attempted to aspire, I consider it as the most important of all.* —τὸ δὲ τὸ ἔκθεμα καλὸν μοι ἡμῶν τῷ εὐρέντι, ὀφίλιμοι δὲ τοῖσι μαθῶσιν, ἡδὺς δὲ καὶ τοῖσι πρῶτοις ὑπὸ ἐπιμέλειαν συνθέναι, ὃ πρὸς ἅπαντα τὰ ἄλλα πολλὰ πλεονεῖν αἴτιον. ||

This coincidence between the three books, concerning regimen, and that concerning regimen in acute complaints, of which Hippocrates is universally regarded as the author, gives some confirmation to Dr. Mackenzie's opinion, who thinks that this celebrated physician is also the author of the three other books, although Leclerc ascribes them to *Herodicus*. The writer of the article *gymnastics* (old Encyclopedie), adduces as proof, that these books are not the composition of Hippocrates, the contempt which, in his opinion, the minute information concerning the gymnastic art contained in them merits. This argument appears to me of little force, respecting an art which we never practised, which was so familiar to the Greeks, and so important in the estimation of that people; and of which the author of that book could speak with some precision, without appearing tedious or unimportant to his contemporaries. If any thing, however, can render the opinion of those who ascribe these books to *Herodicus*, more probable, it is that the third appears to correspond in many respects with the very severe criticism of Plato on *Herodicus*, since, in this book, the author generally treats of persons who experience some change in their health, or some debility in the exercise of their functions, and lays down rules of regimen

suitable to these derangements, with the intention of obviating their consequences. And even Plato's criticism itself is, at bottom, to be regarded as a panegyric upon the author, since he reproaches him on the score of his success alone; our philosopher being averse from prolonging a life, which he regards as burdensome to the individual, and useless to the state.

Thus is it, that the origin of the science, that is, of *hygiène*, reduced to fixed principles, by the results of observation, cannot be traced far beyond the era of *Hippocrates*, and of *Herodicus* his master; and if any one should desiderate more extended details, concerning the monuments of anterior date, relative to this subject, he cannot read a more satisfactory treatise, in this respect, than the history which Dr. *James Mackenzie* gives of these remote times, in his work intitled, *the History of Health, and the Art of preserving it*.* I ought to apprise the reader, that I myself shall borrow many passages from this work, which I shall take care to quote, whenever an opportunity offers itself of transferring them to this article.

HISTORY OF HYGIENE, ARRANGED INTO FOUR PRINCIPAL EPOCHS.

IN reducing the history of an art to certain epochs, there is an essential difference between the method of assuming, as rallying points, the periods at which celebrated men have acquired some reputation in it by their works, and that of restricting our inquiries to those epochs alone, in which the art has been really progressive. This last system, which alone is truly interesting, is very barren in respect

* Second edit. Edin. 1769.

spect to remarkable eras: the other system, is that which almost all medical historians have followed.

According to the second system, we can only enumerate four principal epochs in the history of *hygiène*. The first is that in which the art, reduced for the first time to precepts, founded on regular observation, has given birth to works which have lived in the esteem of posterity. This epoch is that of *Hippocrates*, with whom must be associated his master *Herodicus*, and *Polybius*, his son-in-law and pupil. Its commencement may be dated from the birth of *Hippocrates*, that is, from the 460th year before the christian era. The great number of ages which we shall comprise between the first epoch and the second, ought not to excite the reader's astonishment, when he considers that during this period, of considerable duration, nothing really new has been constructed on the basis established by Hippocrates; and that his principles had been only more or less developed, in proportion as the spirit of observation had, in a greater or less degree, extended its influence among physicians. For, with respect to the study of anatomy, cultivated successfully after his time by Herophilus and Erasistratus, its effects in accelerating the progress of *hygiène* were, at that period, very inconsiderable; and I do not deem those times, in which its motion was rather retrograde than progressive, better intitled to be included in the number of the epochs of the art; as, for instance, when it was perverted by the introduction of subtle disquisitions concerning the degrees of *heat* and of *cold*, of *dryness* and of *moisture*, which infected the last periods of the Arabian school; or when the extravagant fooleries of the adepts decoyed physicians from the path of true observation, to direct their attention to the investigation of those chemical secrets, the possessors of which insuring the gift of a

fort of immortality to others, were ignorant of the means of appropriating it to themselves.

2^{do}, I place the second epoch of the art at the period at which the celebrated *Sanctorius* discovered the phenomena of insensible perspiration, and their connection with all the functions of the animal economy, especially with the inequalities of regimen, and with the variations of the atmosphere. *Sanctorius* was born in 1571. We must then fix the epoch, the honour of which is exclusively due to him, towards the end of the sixteenth century,

3^{tie}, The renovation of physics, before the middle of the seventeenth century, by the experiments of *Torricelli* and of *Pascal*; the discovery of the weight of the air, and of its action on bodies by reason of that weight; the circulation of the blood, already demonstrated by *Harvey*, in the beginning of that century; the labours of *Malpighi*, of *Hales*, and of so many other celebrated natural philosophers, who, devoting their time to the investigation of animal physics, have thrown a new light on every department of medicine. They paved the way for the entire revolution which it experienced in the renowned school of *Boerhaave*; and whatever movements the glory of this celebrated epoch may have received from them, we may affirm, that the physical sciences are indebted to it for all the precision to which they have attained since that period. It is a singular fact, that of the men who distinguished themselves in this noble revolution, if we except those who devoted themselves almost exclusively to the mathematical sciences, a very considerable number were physicians. This revolution has laid the foundation of all that has been accomplished during the greatest half of the sixteenth, and during three fourths of the present (last) century. We also owe to this great impulse, communicated to the physical sciences, all the changes

changes which *Stahl*, *Boerhaave*, and, since their time, the *Barons*, the *Raquelles*, the *Macquers*, have introduced into chemistry, and the light which the science of medicine has derived from the same source.

I have thought it proper to separate this latter epoch from that of *Sanctorius*, although they are so nearly contiguous; because *Sanctorius* had it scarcely in his power to derive any assistance from the sources of which his successors availed themselves; because in a period when the wisest physicians were those, who scrupulously traced the footsteps of the ancient Greeks, who confined themselves to the study of their works, and were occupied in confirming the precepts of their masters by new observations, he alone had the courage to extend the range of his inquiries, which they seemed to have circumscribed; who opened up for himself a new path, and pointed out to his successors a method, hitherto unknown, of penetrating the secrets of nature.

4^{to}, I do not hesitate to fix the fourth and last epoch at the immediate opening of the brilliant career, upon which *Priestley*, *Black*, *Lavoisier*, as well as many of our physicians, who, either by fertile inventions, or by their zeal to propagate knowledge by the method of instruction, have so well deserved of the arts, of the sciences, and of medicine, entered with such distinguished success. This epoch, remarkable for the discovery of the gaseous fluids, of the chemical action of air on bodies, and by that of the composition and decomposition of water, has put into our hands many of the keys which open the sanctuary of nature. Let us hail the success which has already illustrated this era, and which furnishes indications of still more prosperous events in future times. Physicians will henceforth be able to flatter themselves, with the hope of deriving from che-

mistry more certain knowledge, and less hypothetical explanations of the principal phenomena of the animal economy; and chemistry, that noble science, absolutely unknown to the ancients, will amply expiate those errors with which its infancy debased our art. We shall moreover witness another result of that fortunate alliance, contracted in our own time, between the experimental and mathematical sciences: I mean, that medicine, enriched with a still greater number of acquired facts, will be able to approach with accelerated pace towards that exact and demonstrative course, which they so frequently accuse her of having abandoned, and without which she cannot flatter herself with the hope of obtaining any share of real success, or of permanent glory.

I proceed, meanwhile, to resume the history of *hygiène*, and to give an outline of its revolutions till the present time, and of the changes which, in future, we may suppose it destined to experience.

FIRST EPOCH, THAT OF HIPPOCRATES.

DIFFERENT PERIODS OF THIS EPOCH.

THE birth of Hippocrates has been fixed about the 460th year before the christian era. Pythagoras, respecting whom every circumstance which answers my purpose in this article, has been recorded in the history of public *hygiène*, was born about the 600th year before the same era.* The period in which he flourished, then, was 140 years prior to the
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* Travels of Anacharsis, Vol. iv, Table of epochs of the Grecian history.

age of Hippocrates. It was during the epoch of Pythagoras, that medicine and philosophy, combined together, were, according to the observation of Leclerc, practised by the same individuals.

Hippocrates, the same author still farther observes, upon the authority of Celsus, was the first person who separated these branches of knowledge. This separation was not, however, a divorce; and physicians never ceased to be conversant in philosophy. But this division resulted in a double advantage: 1st, the exercise of these two professions becoming daily more extensive, medicine, in order to be practised with advantage, required that the same individual should consecrate all his time to this sole object: 2^d, Philosophy devoted herself to systematic explications of all the phenomena of the universe; for, after that of seeing, the first desire which man feels is to comprehend, and his impatient mind scarcely perceives effects, when it springs forwards towards their causes, without considering at how great a distance they are removed from it, and that this distance can be overtaken only by observation. This spirit of system was peculiarly calculated to injure medicine; which, unfortunately, since that period, has been but too much enslaved by its influence. I thus enumerate the separation of systematic philosophy from medicine, among the first progressive steps made by the art. Hippocrates not only refrained from illustrating the theory of medicine upon the principles of the philosophy of his age; he was moreover unwilling that this faculty of interpreting the phenomena of nature on theoretical principles should be abused in its application to objects, the explication of which should be entirely the result of observation and experience. This opinion is obviously maintained in the treatise *concerning the state of medicine among the ancients*, (*περί των παλαιών ιατρικών*). The author

of this tract, whom Boerhaave, in opposition to Galen, and to some other writers, believes to have been Hippocrates, opposes with remarkable solidity of argument, and by an appeal to facts, a system common in his time. *These, observes he, in the beginning of his treatise, have very much deceived themselves in their multifarious reasonings, who, being inclined to speak or to write concerning medicine, have assumed as the basis of their explanations, heat, or cold, or dryness, or moisture, or any other doctrine which they have been pleased to adopt, narrowing, as it were, the boundaries (ἡ στενὴ ὕψους) of the art, and, attributing to the agency of one or two causes, by the aid of which they pretend to explain every thing, the principal cause of diseases, and of death.* He considers this system as an innovation introduced in his time, when he says, *but my design is to recur again to the consideration of those, who have established a new method of cultivating our art, by building it upon hypotheticalal suppositions.* § And he afterwards adverts to the physical and evident effects of aliment on our bodies, and shews their incompatibility with the doctrine which he combats.

The other books in which Hippocrates appears to found the theories, both of internal causes and of regimen, as well as certain modes of treatment in diseases, upon the qualities against which, he has just now argued, considered as principles of the faculties of our bodies, are acknowledged to be spurious. We ought not then to deduce from their authority any argument for denying his being the author of the former doctrine, which in every other respect is abundantly rational. The opinion, that experience is paramount to every other consideration in medicine, that every process of reasoning must be conducted in conformity to
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its dictates; and that the mind must be guarded against the insanity of attempting to comprehend every thing, is, therefore, to be regarded as one of the first steps of progressive improvement at which physicians arrived after the birth of philosophy. For, observes Hippocrates in his precepts, (*παραγλίσαι*), in order to practise medicine, we must not at first occupy ourselves in forming processes of reasoning clothed with some probability, but deduce our reasonings from observation. —*δεῖ γὰρ μὴν...μη λωγισμῷ πρότερον πιθανῶ, προσεχούσας ἰσχυροῦν, ἀλλὰ τέλει μετὰ λόγου.* This much, then, Hippocrates accomplished, by separating medicine from philosophy.

I conceive it necessary to begin this branch of my subject, by giving this explanation of the meaning which ought to be affixed to the position, that medicine was separated from philosophy; and of the idea which we ought to entertain of this primary character of the epoch of *Hippocrates* ascribed to it by Leclerc.

This epoch ought to be divided into different periods; and the first of these periods may be extended from the time of Hippocrates to that of Galen. The second will comprehend Galen, and the ancient Greeks who followed him. The third will embrace the Arabian school, from which that of the modern Greeks, among whom Aëtarius was the only physician, who merits any particular attention, can scarcely be distinguished. During the same period arose the school of Salernum, more famous than praiseworthy; and yet, till the revival of letters, after the sacking of Constantinople, there appeared in Europe many remarkable and eminent men, independent of the chemists, who adhered to the system of medicine laid down in its conceited jargon. Lastly, a fourth division of this epoch will correspond to the period elapsed between the revival
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guage often gives an air of obscurity to the discourse. I have given a sketch of the universal topics discussed in this book, at the beginning of the article Aliment.

3tio, The treatise *concerning the salubrity of regimen*, (*περὶ διαίτης ὑγιεινῆς*), is written chiefly for the instruction of men who, living in a state of privacy and disengagement from active business, can apply themselves with some detail to the care of their health. Such are those whom the author denominates *idiai, privati homines*. The author of this tract, in the opinion of a great number of critics, was *Polybius*, the son-in-law of Hippocrates. The qualities of *heat* and of *cold*, of *dryness* and of *moisture*, are the principal indications which he specifies, with the view of regulating the diet, according to the seasons, the age, sex, and temperament of the individual. Upon this subject, it is proper to observe, that the author of the book *concerning the state of medicine among the ancients*, has not rejected these considerations, but disapproved of the use which was made of them, by regarding them as explanatory of all the phenomena of health and of diseases, and of all the effects of aliment and of medicine. The author of this book, also, lays down some rules to facilitate the extenuation of too corpulent people, and to restore to a good plight such as are emaciated. The basis of his regimen turns principally upon the choice of aliments and drinks; upon exercise, baths, inunctions, and the means of exciting vomiting, according to circumstances, and to different temperaments. A more complete idea of the contents of this book will undoubtedly be given under the article of Regimen.

The three books *on diet*, (*περὶ διαίτης*), which Leclerc, as I have already observed, ascribes to *Herodicus*, have been also attributed by different critics to other physicians, some of whom lived prior to Hippocrates. Galen attaches little value

value to the first, in which a few excellent remarks are interspersed among a *farrago* of obscure illustrations, respecting the nature of things, and the generation of man. On the contrary, he, as well as Celsus, considers the second and third worthy of the father of medicine; more especially the second, in which the qualities and varieties of aliment are explained at great length. It is, however, evident, that the first and third, at least, are the composition of the same author; not only because in each of these the author claims to himself the invention of regimen, as was stated above, but, because in the first, the writer premises, that he will specify the symptoms which are the harbingers of disease; and by the assistance of which, we can prescribe the regimen calculated to avert their consequences, and executes his promise in the third book; which is also one of the inventions of which he boasts.

In the first book, he expresses himself in the following manner: *I have also found out the means of previously ascertaining, and before man is attacked by them, (πρὸ τοῦ ἀρῆσθαι τοὺς ἀσθενίας...πρὸ ἀδύναμτος), the diseases which must originate in both kinds of excess, (of aliment and of exercise). For these diseases are not suddenly generated, their elements gradually accumulate, and they at last appear when these are united, (ἀλλοῦς ἐκφυσιῶσιν).* I have then ascertained the derangements which man experiences before his health is destroyed by disease, and the means of restoring him to a sound state of health.* In the third book, at the commencement of the first part of that book, he makes use of the following expressions: *I have however detected the prognostic signs (προσῆνους) of those things which predominate in the body, whether aliment prevails over*

VOL. III. Z , exercise,

exercise, or exercise predominates over aliment, as well as the method of remedying each of these excesses, and of studying and comprehending, beforehand, (πρὸ καταπάθων), the state of health, in order to prevent diseases; at least, to guard against indulging in too great and too frequent excesses, for then we must have recourse to remedies, &c.† In proceeding to the second part, he thus expresses himself: *Now, my invention consists, first, in discerning the symptoms which precede an attack of disease, (ὅτι δὲ προδιαίτωνται πρὶν πρὸ τοῦ κατὰν), then in perceiving the changes which bodies experience, whether the quantity of food exceeds the degree of exercise, or the degree of exercise surpasses the quantity of food; or whether both one and the other mutually maintain a just proportion. For the excess of either generates diseases, and health results from their mutual agreement.‡*

We see, then, that the same system guides the author of these two books; that the ideas and the expressions are the same, and, consequently, that they came from the same pen. The first book, which has been improperly divided into two, begins by laying it down as a principle, that the equilibrium of health depends upon a just proportion between food and exercise. Our author then proceeds to explain the nature of man, which he establishes upon the union of the two principles of water and of fire, from which are derived the four primary qualities. This train of reasoning sufficiently proves that the author of this book is a different person from the writer of the treatise concerning the state of ancient medicine. This book contains some curious passages illustrative of the philosophy of the ancients. The second book, much more satisfactory on the

† *Ib.* Lib. iii. § 1.

‡ *Ib.* § 12.

the subject of our inquiries, and replete with excellent observations, contains, in the first place, remarks on the effects of the different regions of the atmosphere, and of the winds: the author then discusses the qualities and varieties of aliments. I have given a pretty full account of this part in the article ALIMENT, p. 710, and following, of this Dictionary; and I flatter myself that I have in some respects contributed to render certain capital terms of the Greek text more intelligible. This book is then concluded with some observations on the different ingredients of *hygiene*, and especially on baths, dietetic vomits, and, above all, on the different kinds of gymnastic exercises.

The object of the third book, is to determine the rules and measures of all things, the use of which contributes to the support of life and health. It is divided into two principal parts; of these, one is appropriated to those “who compose the *most numerous class of men*, (τοῖσι πολλοῖσι τῶν ἀνθρώπων), who live upon such aliments as opportunity supplies, who are forced to labour, who are obliged to pass their lives in travelling, or depend for their subsistence on maritime commerce.” Food, drink, the principal kinds of exercises, baths, dietetic vomitings, methodical directions, according to circumstances and to the temperature of the seasons, constitute the object of the precepts given by the author in the first part of the second book.

But, after having given this series of general precepts, which he considers as applicable to the greatest proportion of the human race, who cannot pay any particular attention to the preservation of their health, (τῷ πλείονι τῶν ἀνθρώπων), he passes on to the exposition of particulars which suit the condition of these, who, leading a more inactive life, do not experience *any real enjoyment without the posses-*

son of health; and whose leisure affords them time to apply themselves to all the inquiries necessary for its preservation. It is in this part of his book, that he strictly investigates the distinguishing marks which predict alterations of health, and the manner in which health vacillates towards different indispositions, which he regards as the germs of diseases. The degree of importance which he attaches to each of these alterations, that the generality of mankind neglect, suggests to him the proportion of dietetic means, by which he resists their progress. We here perceive, that that scrupulous attention to his own case, by which the author is constantly occupied, has incurred the just censure of Plato, and of all the philosophers, who are persuaded that man lives not exclusively for his own interest. After all, this part, as well as the first, contains many interesting particulars, and curious observations.

5to, The book *concerning dreams*, (*περὶ ὕπνου*), principally suggests observations relative to the connection of dreams, with variations of regimen, and to the precautions which they point out for the preservation of health. Many consider this book as the sequel of the third book, on diet. This opinion is not destitute of foundation. There is, in fact, a very obvious connection between the topics discussed in this book, and those illustrated in the second part of the third book on diet, where all the effects of plethora, and of errors in regimen, are considered. These errors are the causes of the greatest part of those disquietudes which disturb rest and sleep. And it is easy to perceive that the same hand executed both of these works.

6to, The treatise *on the regimen in acute diseases*, (*περὶ διαι-
της ἐξαιμῆς*), is generally divided into four books; but the regimen which should be prescribed to the sick is handled in the three first alone; the fourth, which is not considered as the
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composition of Hippocrates, contains only the history of different diseases, and their diagnostic and prognostic symptoms, as well as the method of cure. These first three books, universally ascribed to Hippocrates, and considered as one of his most important productions, have no very close connection with the subject of *hygiene*. The author, however, adverts to several of its principles, by comparing the habits of a person in a sound state of health with the exigences of a state of disease; and by contrasting the effects of aliments, of drinks, of baths, as well as of the different kinds of regimen, upon man, considered both in a state of health and of disease. The first book is intitled, especially in some editions, concerning *ptisan*, that is, the decoction of barley, (περὶ πτισάνης); and its principal object in reality is to explain the effects of this article of food, particularly appropriated to the support of patients during the course of acute diseases.

7^{mo}, The book *concerning the use of liquids*, (περὶ ὑγρῶν χρησέων), is also limited to the consideration of morbid affections, both internal and external; but we likewise find in it some reflections which are not foreign to the preservation of health; as are also to be found scattered in different other treatises, such as that *concerning the different regions inhabited by man*, (περὶ τόπων τῶν κατ' ἀνθρώπου); *concerning winds*, (περὶ φυσῶν); *concerning the state of medicine in ancient times*, (περὶ ἀρχαίων ἰατρικῆς), &c.

In respect to *Polybius*, the son-in-law of Hippocrates, and his successor in the school, which he had established, we have mentioned every thing that came to our knowledge, when treating of the book ascribed to him by Galen, that, viz. *concerning healthy regimen*.

DIOCLES CARYSTIUS.

DIOCLES CARYSTIUS, who has been called the second Hippocrates, is only known to us by the letter which he wrote to Antigonus, one of Alexander's successors, and which we find preserved in the editions of Paulus Egineta, at the end of the first book, ch. 100, under the title of *Prophylactic epistle of Diocles*, (Διοκλῆος ἐπιστολή προφυλακτική). It is of the same purport with the third book on diet. Diocles, in this letter, specifies the signs which precede diseases, and the prophylactic means to be adopted, when these symptoms make their appearance. He divides diseases into those of the head, of the breast, of the abdomen, and of the bladder. The author then proceeds to treat of the preservative measures which correspond to the changes induced in our bodies, by the influence of the seasons; and observations of this nature conclude the letter. The topics discussed in this morsel of antiquity are necessarily very vague, and do not convey to us the idea of any remarkable progress of the science. The author of the article *Ancient Physicians*, (*Dictionnaire Encyclopedique de Medicine*), places the age in which Diocles flourished, at the distance of 72 years from the era of Hippocrates.

CELSUS.

CELSUS, (*Aurelius Cornelius Celsus*), according to the same author, wrote in the 30th year of our era, and must have been born about the 11th year before the commencement of the christian dispensation. More frequently the elegant and judicious translator of Hippocrates, than an original, we recognize more order and method in his works than in those of his master. His age is beyond question much indebted to him; but he did not greatly accelerate the progress

gress of the art. The first book of his works contains the precepts relative to health. He begins by an exposition of the regimen adapted to strong, healthy, and robust people; and then gives the rules suitable to those of a weakly constitution, and to invalids; and, finally, the precepts, the observance of which is rendered necessary by the seasons, or which are useful in the different circumstances of life.

In his first chapter, he lays down two remarkable rules. His first general maxim is, that a man of a good constitution, and in the full enjoyment of health, ought not to confine himself to any invariable law. A very wise precept, from which results a notable proposition, improperly censured by some authors, who have not entered into its general spirit. The proposition is the following: *modo plus justo, modo non amplius assumere; sometimes to exceed the strict measure of necessity, sometimes to confine ourselves within its bounds.* This is certainly the true import of the expression *justo*; and *Sebizius* has not attended to its proper signification, when he reproaches *Celsus* as the advocate of gluttony and drunkenness. It is certain, that the strict and precise law of necessity is not calculated for those who enjoy a vigorous state of health, but for those alone who are obliged to watch over themselves with a rigorous attention; and when *Sanctorius* has made the following reflection, *Celsi sententia non omnibus tuta est,** he has said nothing which the author himself had not advanced in the subsequent chapter. *Celsus*, moreover, deduces from the same proposition an inference relative to the customs of his own time, and to the use which was made of the gymnastic art. This inference confirms what I have said in the first part of this article, concerning the true sense of an aphor-

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* Sect. 3, aph. 42.

ism of Hippocrates.† The text of Celsus is as follows: *Sed ut hujus generis exercitationes cibique necessarii sunt sic athletici supervacui. Nam et intermissus propter aliquas civiles necessitates ordo exercitationis corpus affligit; et ea corpora que mere eorum repleta sunt, celerrime et senescunt, et egrotant.* But as this kind of exercise and of food is necessary, so violent exercises are superfluous; for both the order of exercise being interrupted on account of some necessary avocations, injures the body, and those bodies which after the manner of the athletics have become lusty, very quickly both grow old and sickly.

A second very remarkable and very important proposition, to which, in my opinion, the abuse of antidotes, in certain instances, is attributable, is the following: *Cavendumque ne in secunda valetudine, advertæ præfidia consumantur.* —and we must take care lest, in good health, our resources in sickness should be wasted.

Farther, the precepts of Celsus chiefly relate to regimen, and to the choice of aliments and of drinks, to the use of baths, the proportions and mutual relations of diet and of labour; to dietetic vomitings or syrmaism, and to gymnastic exercises. The part of his work in which the regimen adapted to people of weak and delicate constitutions is considered, is replete with judicious observations. For these we are indebted to this author; or he was at least the first, as far as we knew, who explained them, with a method and perspicuity which we do not find in the works of Hippocrates. We here perceive, either that himself was the subject of his own observations, or at least that he has derived his precepts immediately from the study of nature. In the number of people of weak constitutions, he includes the greatest part of men of letters, and of the inhabitants
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† Sc&. i, aph. 3.

of cities. *Quo in numero magna pars urbanorum, omnesque penes cupidi literarum sunt.*

After this discussion, Celsus proceeds to the variations of regimen, which different constitutions, different periods of life, sex, and the seasons, render necessary. He afterwards explains the regimen adapted to persons labouring under different infirmities, and that which is most proper to avert the effects of pestilential contagions. In the second book, from the beginning of chapter 18th, he explains the properties and qualities of aliments and of drinks. We here find many of the observations of Hippocrates interspersed among those which are peculiar to our author; and, unfortunately, we also meet with classifications very much at variance with sound physics, of substances essentially different in their nature, arranged under the same order, and with contradictions which seem inexplicable. We shall find in this book, *cucumber* included in the order of substances, which Celsus designates by the expression *que boni succi sunt*, which afford good juices; and the same vegetable, in the subsequent chapter, classed with those (*que mali succi sunt*) which yield bad juices. This division itself presents us with nothing that is perspicuous or intelligible; and, in the order of cooling substances, we find *coriander* associated with *cucumis*, &c. But, notwithstanding these inconsistencies, Celsus is one of the authors in the Hippocratic era, from whom, those who think for themselves derive most profit, and by the perusal of whose works they will best inform themselves concerning the state of medicine among the ancients.

Dr. Mackenzie, in his work, elucidates in ample detail the most remarkable precepts of this physician, as well as those of most of the other writers. I shall not enlarge so much upon them in this place, because such a description would

would extend this article to too great a length; and because it is more natural to reserve the full consideration of the subject, for the article of REGIMEN, to which I hope to give my most serious attention.

PLUTARCH, AGATHINUS.

PLUTARCH, who was not a physician, has left us an excellent treatise, intitled, *ὑγιεινὰ παραγέληματα*, — *precepts for the preservation of health*. This treatise contains no new ideas; but a new illustration of ideas, with which physicians had been previously familiar. And in the history of our art, it is proper to distinguish the epochs at which the intermixture of philosophy has enhanced the value of medicine, and extended its empire over the minds of man. The shew of science, and of accurate demonstrations, makes little impression upon the vulgar. Plutarch, with a looser chain of reasoning, but with striking comparisons, and an enchanting style, adorned the precepts of the art, and conciliated to them the affections of his readers. His precepts were reduced to practice by himself; and a long life, a vigorous health, the preservation of all his faculties unimpaired till a very advanced age, confirmed the truth of what he had written. Among other kinds of exercises, he highly estimated reading with a loud voice; and we see that this custom was generally regarded by the ancients as productive of the most salutary consequences. He attaches little value to syrmaism or dietetic vomitings, so often practised among the ancients. He considers them as an invention favourable to gluttony, but contrary to nature, and hurtful to health. The little importance which Plutarch attaches to cold bathing, so universally prevalent in his time, is a fact no less remarkable. On this subject he expresses himself in the following manner: *λατρεῖν χρῆσθαι, ψυχρῶ μὲν, ἐπι-*

δεικνύναι τῷ νεανίᾳ μᾶλλον ἢ ὕμνειν ἔστι. —the habit of plunging one's self into the cold bath after exercises, is rather the inconsiderate act of a young man, than a salutary custom. He considers, that hardening of the body, and that insensibility to the influences of external objects, (δυσπαθείας πρὸς τὰ ἔξω καὶ πλεονεκτήματα τοῦ σώματος), which, he observes, to result from the use of the cold bath, as noxious to the internal functions, and unfriendly to perspiration. He subjoins these considerations: That the persons who are accustomed to the use of cold baths, necessarily relapse into that precision and scrupulous regularity of regimen, which, in his opinion, ought to be avoided, having their attention always occupied in guarding against transgressing the strict rules of this regimen, inasmuch, as the least error would soon be punished by fatal consequences. In respect to the warm bath, he adds, you may much more frequently transgress against it with impunity. In truth, any diminution of tone and of vigour, which the body may sustain from its use, is of far less moment than the advantages derived from it, on account of properties so favourable and conducive to the process of digestion.*

This is not the place to investigate either the truth or the falsehood of this opinion of Plutarch. It is only proper to observe, that the Romans adopted the use of the cold bath, especially from the reign of Augustus, whose life, as has been said, *Antonius Musa* saved, by its application; that they had even carried this practice to the verge of insanity, and perhaps to excess. Seneca boasts of his vigour in this respect: *Tantus ego psychrolutes!* Finally, that Plutarch wrote this treatise nearly about the time when *Agathinus*, a celebrated physician who practised at Rome, extolled in the

* Plut. l. c. ed. of Hen. Steph. 1572, in 8vo, Græc. p. 227, Lat. 226.

the highest degree the habitual use of the cold bath, for men as well as for children. But *Agathinus* recommended the use of the cold bath only after moderate exercise, at the moment when one feels his body active, and before he takes food. He directed frequent and sudden immersions, intermixing dry frictions, and adding the exercise of swimming. He did not wish that the temperature of the water should be reduced to the freezing point; and he did not believe, that with these precautions, any great danger might be apprehended, in very hot weather, from bathing even after supper. It does not appear that he advised the use of the cold bath in the first stage of infancy; but he condemned the application of the hot bath, at this age, as most prejudicial to health. This species of the bath he regarded as useful only to men who had been fatigued, or whose bowels were tardy and constipated.* Galen quotes *Agathinus* in many places; but is silent as to his opinions relative to *hygiene*.

The truth is, that Plutarch had certainly gone too far in exaggerating the limitations which the use of the cold bath requires, and that its advantages have always been recognized by sound observers, if on every occasion we avoid the rashness which might render its use dangerous, and do not contract a habit in this respect, the ascendancy of which would sooner or latter become troublesome. I do not speak here of Plutarch's two discourses, concerning the use of animal food, (*περί σαρκωφάγίας*), in which he expostulates against this custom, more by philosophical reasonings than from considerations of its effects on health. For our author himself, as Mackenzie observes, did not abstain from
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† See Oribas. coll. lib. x, cap. 7.

the use of this kind of food ; and he appears to have composed these discourses, rather with the view of submitting to the public some ingenious opinions entertained by him, than of introducing a reform in the customs of his time.

To the authors who have written on *hygiène*, during the period now under consideration, we may add those who have treated on aliments. Galen mentions Xenocrates, who lived under the reign of Tiberius, and had written a treatise on fishes, included in the collection of Photius ; but which, as Mackenzie remarks, comprehends little that is really useful. Dioscorides, who flourished under Nero, has inserted in his work different articles concerning aliments ; their seasonings and qualities, among the medicines which compose its principal subject. These articles are especially to be found in the second and fifth books, and in general they possess but a moderate share of merit. We must not class *Celius Apicius* in the number of the authors who have written on *hygiène*, although he collected all the *receipts* on cookery extant in his time. He lived under the reign of Trajan. But Pliny, the naturalist, who flourished under Vespasian and Titus, furnishes all that curiosity can desire, concerning the natural history of alimentary substances, concerning the properties attributed to them, and concerning the practices of the Romans in his age : and the charms of his style, the profound and philosophical reflections with which his work is complete, compensate for the errors and credulity which we are obliged too frequently to lay to his charge.

While speaking of the philosophers who, in this age, employed themselves in disquisitions connected with the preservation and physical perfection of the human race, it would be an unjust omission to pass over the name of *Aulus Gellius*. In the twelfth book, ch. 1, of the *Attic Nights*,

Nights, Noctes Atticae, of this author, we find a passage worthy of notice, concerning the suckling of infants by their mothers, and the inconveniency of mercenary nurses, who in Rome were generally selected from among the slaves. It is *Favorinus*, a celebrated philosopher of that period, born at Arles, who is supposed to address himself to the mother of a Roman lady.

Quum mater puellæ parcendum ei esse diceret, adbibendæque puero nutrices, Sc....Oro te inquit, mulier....Sine eam totam integram esse matrem filii sui....Pleræque istæ prodigiosæ mulieres fontem illum sanctissimum corporis, generis humani educatorem, arefacere et extinguere, cum periculo quoque averſi corruptique lactis, laborant; tanquam pulchritudinis sibi insignia devenisset....Non idem sanguis est nunc in uberibus, qui in utero fuit? Nonne hac quoque in re solertia naturæ evidens est, quod postquam sanguis ille opifex in penetralibus suis omne corpus hominis finxit, adventante jam partus tempore, in supernas se partes profert, ad fovenda vitæ ac lucis rudimenta præsto est, et recens natis notum et familiarem victum offert? Quamobrem non frustra creditum est, se intus valeat, ad fingendas corporis atque animi similitudines vis et naturæ seminis, non secus ad eandem rem lactis quoque ingenia et proprietates valere. Neque in hominibus id solum, sed in pecudibus animadvertum; nam si ovium lacte hædi, aut caprarum agni alantur, constat ferme in his lanam duriorum, in illis capillam gigni teneriorem....Quæ, malum, igitur ratio est, nobilitatem istam modo nati hominis, corpusque et animum bene ingeniatis primordiis inchoatum, insitivo degenerique alimento lactis alieni corrumpere?...Si præsertim, ista quam ad præbendum lacte adbibebitis, aut serva, aut servilis est, et, ut plerumque solet, externæ atque barbaræ nationis; si improba, si informis, si impudica, si temulenta est.

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"When the young woman's mother said that she must be spared, and nurses provided for the child, I intreat you, woman," said he, "allow her to be the sole and entire mother of her own son... Many unnatural women endeavour to dry up and extinguish that sacred fountain of the body and nourishment of man, with great hazard, turning and corrupting the channel of their milk, lest it should render the distinctions of their beauty less attractive... Is not that blood which is now in the breast, the same which was in the womb? Is not the wisdom of nature evident also in this instance, that as soon as the blood, which is the artificer, has formed the body within its pentalia, it rises into the upper parts, when the period of parturition approaches, to cherish the first principles of life and light, supplying known and familiar food to the new-born infants? Wherefore it is not without reason believed, that as the power and quality of the semen avail to form likenesses of the body and mind, in the same degree also the nature and properties of the milk avail toward affecting the same purpose. Nor is this confined to the human race, but is observed also in beasts. For, if kids are brought up by the milk of a sheep, or lambs with that of goats, it is plain by experience, that in the latter is produced a coarser sort of wool, and in the former a softer species of hair... What, I would ask, can be the reason, that you should corrupt the dignity of a new-born human being, formed in body and mind upon principles of distinguished excellence, by the foreign and degenerate nourishment of another's milk?... Particularly if she, whom you hire for the purpose of the supplying the milk, be a slave, or of a servile condition, or, as it often happens, of a foreign and barbarous nation, or if she be dishonest, or deformed, or unchaste, or a drunkard."

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I only extract from this eloquent piece, such clauses as contain ideas and reasonings most intimately allied to the physical knowledge of man. The whole passage merits a perusal in the original. *Favorinus*, whom *Aulus Gellius* makes the principal character in this dramatic scene, lived in the reign of Adrian.

SECOND PERIOD OF THE FIRST EPOCH.

GALEN.

GALEN, born at Pergamos, a city of Asia Minor, in the 130th year of the Christian era, was the person who (after Hippocrates) most ably elucidated the art of medicine, by the extent of his knowledge, and by the excellence of his writings. Having deeply imbibed the Hippocratic spirit by repeated perusal of the Coan sages' works, he has analysed his writings, and enriched his doctrine, by happy applications: and anatomy, which in his time had already made great progress, eminently contributed to give a greater degree of precision to his ideas. These advantages, it must be confessed, are counterbalanced by some defects, by a copiousness which is often diffuse, and by a degree of minute subtilty. He it was, who, independently of the little solidity of the famous doctrine of heat and of cold, of moisture and of dryness, which he embraced, subjoined to it the extreme and useless subtilty of the four degrees, into which he divided each of these imaginary qualities. It was by means of these divisions, purely hypothetical, that he pretended to classify and to define the different properties of aliments and of medicines. This doctrine was afterwards diffused, and had great success, in the Arabian school. It constituted a great part of the knowledge
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of physicians of Europe, during the thirteenth and fourteenth centuries, who were acquainted with Arabian writers alone, and, with Galen, through the medium of the Arabian school. This doctrine reigned until the learned men of the Greek empire were spread over Europe, and, with their manuscripts, carried thither the taste of antiquity. From that time, the works of Hippocrates became the absolute standard of the schools, as well in Italy, as in France, and in England.

It is very astonishing, that so fine a genius as Galen, should have attached so much importance to speculations, so little susceptible of accurate demonstration; and that a man, who in other respects scattered so much philosophy through his writings, who has composed the admirable treatise *de usu partium*, should be the very person who indulged himself in such frivolities. We meanwhile see, that full of veneration for Hippocrates, he was averse from ascribing to him the treatise intitled *Concerning the state of medicine among the ancients*, (*περὶ ἀρχαίων ἰατρικῆς*), the author of which opposes this very doctrine, already become fashionable in his time, revived afterwards and amplified by Galen; and, for the purpose of overturning it, makes use of the most solid reasonings, dictated by the simplest observation.

With respect to the doctrine of *bygiène*, Galen ought to be considered, either as an original author, or as commentator on Hippocrates.

The original works of Galen are, six books *on the Preservation of health*, (*ὑγιάνης*): a book containing a disquisition on this question, *Is bygiène (τὸ ὑγιέναι) dependent on medicine, or on the gymnastic art?* another book having this title, *Concerning the best complexion (εὐταχυνία) of the body, the means by which it may be known and defended from the causes which can*

destroy it: another, treating of the constitution, of a good constitution, &c. (ἔξις, ὑγία,) and of the difference between it and an athletic constitution: three books, concerning the properties of aliments; one upon the aliments, which form good or bad juices, (περὶ εὐχυμίας, καὶ κακοχυμίας τροφῶν); another on attenuating diet, (περὶ λιπιδυνόσης διαίτης); another on the exercise designated that of the small ball, (μικρῆς σφαίρης), a species of game analogous to that of the hand ball. To the books of Galen on hygiene, is ordinarily joined the treatise intitled, on the method of recognizing, and of curing, the passions of the soul, that is, the excesses which result from their indulgence. To this piece, Chartier adds another, which has nearly a similar title, and contains analogous precepts, unless, that in the former of these titles, he makes use of the expression, τῶν ἐν τῇ ψυχῇ παθῶν, —of the passions of the soul; and, in the latter, of the term τῶν ἐν τῇ ψυχῇ ἀμαρτημάτων, —of the errors of the soul. But, in both books, the text of Galen, exhibits on each occasion the last term ἀμαρτήματα, faults or errors.

It is assuredly a very wise and a very just idea, to class the precepts of philosophy with the means most conducive to the preservation of health. Lastly, a subject of great importance, and worthy of deep consideration, is that of which Galen treats in his book on habits, (περὶ τῶν ἰθῶν.) Different fragments, and certain other treatises, ascribed to Galen, might be subjoined; but they add nothing to what is contained in the above: and the spirit as well as doctrine of Galen will be sufficiently comprehended by the perusal of those which have just now been quoted. If we subjoin to these his three commentaries on the treatise of Hippocrates, concerning air, water, and situation; a commentary on the book attributed to Polybius, concerning the salubrity of the regimen of individuals; and four commentaries on the
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book intitled *de alimento*; we shall have all that Galen has left us of any importance on *hygiène*. The abridgment of *Lacuna*, intitled *epitome Galeni operum*, and published at Lyons in 1643, gives a pretty complete account of the works of Galen; the prolixity of which required this assistance. It also enables us to turn over the original text without loss of time, whenever we have occasion to consult it.

Mackenzie gives a very good idea of all that Galen has added to the knowledge communicated by his predecessors on the doctrine of *hygiène*.

"In order to adapt his rules concerning *hygiène* to persons under all circumstances, Galen divides mankind into three classes. In the first, he reckons those who are naturally sound and strong, and at liberty, from their affluence, to bestow what time and care they please on their health. In the second, he places such as are of a delicate and infirm constitution. And his third class, contains those whose necessary occupations, in public or private life, will not permit them to eat, sleep, or use exercise, at regular hours."

"As to the first class, he observes, that to preserve health and life, as long as is consistent with the life of man, it is necessary that the stamina of the organs should be naturally good. For some," he says, "are so crazy, that *Esculapius himself could scarce prolong their lives beyond threescore*. This class he divides into four periods; viz. infancy, youth, manhood, and old age. Two of these periods, namely, infancy and old age, had been touched upon but slightly before his time. But as to youth and manhood, whether of robust or tender constitutions, the general rules established by Hippocrates and others, for preserving health, are, for the most part, the same which Galen also recommends, and therefore need not be repeated here."

“ To be brief, there are four articles with regard to the preservation of health, which Galen has considered more attentively than any that went before him, viz. 1, infancy; 2, old age; 3, the difference of temperaments; and 4, the care necessary to be taken by those whose time is not in their own power, &c.”

Dr. Mackenzie afterwards enters into a succinct detail concerning the most important rules, which Galen gives for preserving the lives and health of men, in these four periods of life. I shall not follow him in the disquisition, which belongs rather to the article of regimen, than to an historical article. I shall content myself with enlarging upon three objects, which are more immediately connected with the history of the art: these are,

1, The origin of the term *non-naturals*, to signify the objects which appertain to *hygiene*.

2, The history of cold baths, especially in their application to infants.

3, The establishment of the doctrine of the four temperaments, and of their four degrees, which, notwithstanding its absurdity, for so long a period, kept possession of the schools.

I, “ The epithet of *non-naturals*, applied to the things most essential to the support of human life, appears extremely shocking and contradictory,” as Mackenzie has observed: nor does it seem less extraordinary,” says he, “ that the use of an expression, so ill-fancied, which arose merely from the jargon of the peripatetic schools, should for so long a period have continued current among physicians. The origin of it appears to be derived from a passage, where Galen divides things relating to the human body into three classes. The first, consisting of those things which are *natural* to it; the second, of things which are *non-natural*, that is, beyond

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“ the pale of its nature ; the third, of things which are *extra-natural*, that is, of things different from the ordinary course of nature. The following are the words of Galen, copied from the Latin version of the book *de Oculis*, ascribed to him : * *Qui sanitatem vult restituere decenter, debet investigare septem RES NATURALES, quæ sunt, elementa, complexionones, humores, membra, virtutes, spiritus, et operationes:— Et RES NON-NATURALES, quæ sunt sex, ær, cibus, potus, inanitio et repletio, motus et quies, somnus et vigilia, et accidentia animi. Et RES EXTRA-NATURALES, quæ sunt tres, morbus, causa morbi, et accidentia morbum comitantia.* From this fantastical distinction, the epithet of *non-naturals* first arose, and has been retained in common use to this day ; though it cannot be understood without a commentary. Hoffman, for example, when he applies this epithet to air and aliment, accompanies it with the following explanation : ‘ *A veteribus hæ RES NON-NATURALES appellantur, quoniam extra corporis essentiam constituta sunt.*’ † This explanation of Hoffman applies extremely well to air and to aliment ; but how can it be transferred to evacuations, to sleep and to watchfulness, to motion and to rest, and to the affections of the soul ?”

II, We have seen that the use of the cold bath had been introduced by *Antoniùs Musa* ; extolled by *Agathinus*, and condemned by *Plutarch*, by very inconclusive arguments.

Galen was far from adopting the opinion of *Agathinus*, respecting the use of the cold bath. In whatever estimation

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* It is found in Chartier's edition, tom. x, § 3, c. 2, p. 520. The Greek text has not reached our times. Mackenzie's quotation, in which he does not mention the edition, specifies *Class vii, lib. de Oculis, parte tertia, cap. 2.*

† *Diff. 3. Decad. See Mackenzie's Hist. &c. Introduction, p. 4, note.*

tion it may be held, on account of its strengthening effect, he did not wish that it should be applied before the growth of the body was completed. The age at which he fixed the commencement of its use, was the middle of the fourth septennary, that is, about the twenty-fourth year. He farther directed, that the young man who had recourse to cold bathing, should have a good constitution, and enjoy an uninterrupted state of good health; that his temper should be chearful and open, that is, that he should have no predisposition to melancholy, or hypochondriasis. He advised, that the beginning of summer should be chosen for acquiring this habit, that there might be sufficient time for being inured to it before the return of winter: that the day selected for commencing this practice should be calm, and as warm as possible for the season; that the hottest time of the day should also be chosen for immersion into the cold water; and that the *gymnasterium*, or the place where the people stripped themselves, should be of a proper degree of temperature. According to Galen, also, cold bathing should be preceded by frictions, quicker and harder than usual; and after the customary unctions, the young man ought to engage in the most violent exercises. After these preliminary practices, "let him plunge in," says Galen, "quickly; because nothing can bring on a greater degree of shivering, than entering gradually into cold water, inasmuch, that every part of the body is affected in succession. Let not the water into which he immerses be either lukewarm or frozen." "If tepid water," observes this great physician, "has not the advantage of exciting the flux and reflux of heat, (*ἡ ποιεῖται θερμότητος ἐπιδανάλῃσι*;) water whose temperature is diminished to the point of freezing, takes too fast a hold of those who are not accustomed to it, and the cold affects the vital parts." The young man, he adds, will be able by de-

grees to accustom himself to endure water of the freezing temperature ; but, in his first attempts, he must not expose himself to water which is too cold, &c.*

Before entering on these details, Galen observes, *“ a well formed healthy body, ought not to be washed in cold water during the progress of its growth, lest this progress should be retarded.”*† But it is chiefly in respect to the most tender age, that he strenuously opposes the use of the cold bath. “ Let us leave,” says he, “ this custom to the Germans, the Scythians, and other barbarous nations, as also to the wild boars and bears, never advising any person to run the hazard of inflicting a sudden death on a new-born infant, in the hope of strengthening and rendering him hardy, if he dies not in course of this dangerous experiment.”‡ There is certainly some truth in this statement ; but it is a false assertion, that the use of the cold bath is naturally a cause capable of retarding the growth of the body ; and between the practice of plunging a new-born infant in water of the temperature of ice, and the entire proscription of cold bathing till the age of twenty-four years, there are certainly a great number of intermediate gradations. We consider Dr. Mackenzie’s reflections on this subject deserving of being quoted in this place ; inasmuch as they were suggested to him by this passage of Galen, in a very pertinent note, and are very worthy of being known.

He observes, in the context, that the practice recommended by Galen of rubbing the body of the new-born infant with salt, has for a long time gone into disuse, and has been advantageously superseded by that of cold

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* De Sanitat. tuend. lib. iii, c. 4, ed. de Chartier.

† Ib.

‡ Ib. lib. i, c. 10.

bathing, employed *with proper precautions*. He then states in a note, "that the cold bath, by strengthening the solids, and promoting a free perspiration, gives liveliness, warmth, and vigour, to infants; highly conducive to prevent rickets, broken bellies, scrophulous disorders, and coughs, to which children are extremely obnoxious in some countries. And nature herself seems to have pointed out this remedy to men, both in the ancient and new world. Virgil informs us, that it was a custom in Italy, long before the building of Rome, to plunge their new-born infants in the coldest streams.

*Durum a stirpe genus, natos ad flumina primum,
Deferimus, sevoque gelu duramus et undis.**

"And William Pen, in his letter to Dr. Bainard,† has the following words: '*I am assured that the American Indians wash their young infants in cold streams, as soon as born, in all seasons of the year.*'

"With regard to infants of a strong constitution, there can be no objection to the use of cold bathing, especially if (to avoid a sudden transition from the warmth in which a fœtus was formed to an opposite extreme) parents would defer it to the next summer after the child is born. But to guard against any possibility of danger to the infant from this daily and quick immersion of the whole body, let the nurse observe whether he becomes warm and lively immediately upon his being taken out of the water, or soon after he is rubbed dry and dressed; if so, the cold water will undoubtedly prove of service to him: but if, on the contrary,

* Æn. lib. ix, 663.

† History of cold Baths, part ii, p. 291.

trary, the child becomes chilly and pale, and especially if any of his limbs should be contracted or benumbed with the cold, and continue so for some time after he is rubbed dry and dressed, the use of the bath must be intermitted for a few days, and tried again when the child is brisker; or, in case the same symptoms should return, it must be quite laid aside."

If it should be replied to these testimonies, that the practice of the cold bath is not necessary to render infants strong and vigorous, I shall very readily acquiesce in the truth of the assertion: but the opposer of this custom must also grant, that it is not so prejudicial as has been believed; that it must necessarily contribute to fortify young children against the inclemencies of the seasons; and, above all, against the varieties of temperature, so often hurtful to those who are clothed with so much care, and are secluded with so much solicitude from all atmospherical impressions.

III, I proceed to the doctrine of heat and of cold, of dryness and of moisture, and of the four degrees into which Galen has divided those qualities of bodies. He does not apply these distinctions to aliments, but to medicines. The substance of his observations on this subject is as follows. I say the substance, because the diffuse style of this writer does not permit me to insert in this place an entire translation of the passage. "*Whatever may be the quality of a medicine, whether heat, cold, dryness, or moisture, we must refer it to a middle state, which constitutes what may be called the perfect temperament, (τὸ ὑγρον, τὸ μέν).* Having assumed this for the subject of our comparison, a body, whatever may be its nature, whose condition may be considered as tempered, in proportion as medicinal substances are removed from the temperament of this body, they become, in respect to it, more or less hot, cold,

cold, dry, or moist, some to the first degree, others to the second, third, fourth. Thus is it, he adds, that the oil of roses, (*rosa* *indica*), being in the first degree of cold, the fourth degree will be filled with hemlock, the juice of poppy, mandrake, and ben-bane: and dill, as well as fennel-seed, being in the first degree of heat, the fourth will be possessed by caustic substances. We may reason in the same manner with regard to dryness and moisture. It is of consequence, he says, not to confound these degrees. I propose to myself to execute this classification, not by the aid of probabilities and conjectures, but by precise and accurate experiments: a work abounding with difficulties, but calculated to confirm and insure the progress of medicine. This will be the eye by whose assistance truth will be recognized and established.†

Such are the eulogies which Galen passes upon this system of classification, of which he was not the inventor, but which he boasts of having carried to a great degree of perfection. The middle term is man in general, and each individual in particular; and in each individual, the organ of touch, or the skin especially. This arrangement he accompanies with the following observation: that as the constitution of each individual is different, what may be classed in the number of hot substances for one, will be sometimes found in the number of cold substances for another, &c.

Whatever truth may be in this theory when stripped of its hypothetical garb, I shall rest satisfied with having adverted to it in this place, as more worthy of occupying a distinguished place in the history of errors than in that of the progress of the art. And I shall remind my readers, that

† Lib. iii, de Medicam. simp. facult. ed. Chartier, cap. 13.

that the same man, speaking of the qualities of aliments, a work replete with excellent observations, observes, that he shall have recourse to experience alone in order to determine them; and not to any process of reasoning founded upon the suppositious properties of these substances. He has also given us some very useful remarks, in the three books written by him on this subject. I have had occasion to give a succinct account of this performance under the article Aliment.

I shall close this article, as Mackenzie has done, by quoting a remarkable passage of Galen, extracted from his Treatise on the preservation of health. "I beseech all persons, says he, "who shall read this treatise, not to degrade themselves to a level with the brutes, or the rabble, by gratifying their sloth, or by eating and drinking promiscuously whatever pleases their palates; or by indulging their appetites of every kind. But whether they understand physic or not, let them consult their reason, and observe what agrees, and what disagrees, with them; that, like wise men, they may adhere to the use of such things as are conducive to their health, and forbear every thing which, by their own experience, they find to do them hurt; and let them be assured, that, by a diligent observation and practice of this rule, they may enjoy a good share of health, and seldom stand in need of physic or physicians."

PORPHYRY.

BETWEEN Galen and Oribasius, who, after Galen, was the first of the Greek physicians whose writings have come down to us, an interval of two centuries elapsed. In this space of time we ought not to forget the celebrated *Porphyry*; the pupil of Plotinus and Longinus, men of still greater

greater celebrity. He was one of those extraordinary men, who, less occupied with the harmonious proportions of nature, than with speculations suggested by their own genius, and searching for virtue beyond the boundaries of human nature, and not as an inmate of the human breast itself, regard it as an inflexible rule, to the observance of which man must be bound down; and to which must be sacrificed, not only his prejudices and his habits, but even his faculties and his organs.

Porphyry was a native of Tyre; he lived about the middle of the third century, and wished to restore the abstemious system of the Pythagoreans. Plotinus, his master, a Pythagorean philosopher, had acquired great respect on account of his virtues. He was the oracle of his time; and the first families in Rome intrusted to him the instruction and education of their children. It appears that Porphyry, who succeeded to his school, wished to avail himself of the advantages of his situation, for the purpose of reviving a sect, whose severe virtues and peculiar practices were congenial to his own disposition, and afforded him an opportunity of acting a conspicuous part after Plotinus had disappeared from the scene. He wrote a book on abstinence from animal food, of which *Bourigny* has given us a translation. This book is addressed to *Firmus Casbrius*, an apostate from his school, to whom he recounts the advantages accruing from the regimen which he had abandoned, and how much it contributed, not only to bodily health, but to the perfection of the soul. He establishes his system upon these two fundamental propositions; 1st, "That a conquest over the appetites and passions will greatly contribute to preserve health, and to remove distempers:" 2^d, "That a simple vegetable food, being easily procured and easily

easily digested, is a mighty help towards obtaining this conquest over ourselves.†

In support of his first proposition, he adduces the example of some of his friends, who, for a long period, were tormented with the gout both in their feet and hands; inasmuch, that they were under the necessity of being carried about from place to place, for eight years successively, without ever obtaining any relief, yet were perfectly cured, by diverting themselves of the care of amassing riches, and by turning their thoughts to philosophy; and at once got rid of their mental torments, and of their bodily sufferings. He then asks, whether animal diet, rich and sumptuous, does not require more expence, and, at the same time, more incite to irregular passions and appetites, than a diet composed of simple vegetables? From these premises, he deduces conclusions of a very comprehensive nature; and which, in Dr. Mackenzie's opinion, "favour more of the rant of an enthusiast, or of the mortification of a hermit, than of the sound mind of a well instructed natural philosopher."

I shall say nothing farther of a person, who, perhaps, had stronger pretensions to the character of a whimsical man, than of a rational being; and whose writings have added nothing to our stock of knowledge.

ORIBASIUS, AND THE ANCIENT GREEKS, WHO FOLLOWED GALEN.

ORIBASIUS, and the Greek physicians, denominated the *ancient Greeks*, and the last of whom was *Paulus Ægineta*, have borrowed all their observations on *hygiène* from Galen, and

† See Mackenzie, b. ii.

and other writers who appeared earlier than themselves, and of many of whom we are entirely ignorant. *Alexander of Tralles*, the most original among them, has left us nothing on the preservation of health. According to Freind, *Oribasius* lived in the middle of the fourth century, towards the year 360; and *Paulus Ægineta* in the middle of the seventh century, about the year 640. Mackenzie observes, that *Oribasius* was the first of the ancient physicians who expressly recommended exercise on horseback, for the sake of health. "This exercise, above all others, strengthens the body and stomach, clears the organs of the senses, and whets their activity." He adds, what in the present times will scarcely be believed, but what is nevertheless true in certain circumstances, "that this exercise is very hurtful to the breast." * Mackenzie goes too far in ascribing these precepts to *Oribasius*. That physician only collected what many authors before him had written; and this passage in particular, as *Oribasius* himself acknowledges, is extracted from the thirtieth book of *Antyllus*. *Oribasius* had undertaken these collections (*medicinae collectiones*) by the order of the emperor Julian, who had formed the design of having all that was really useful extracted from the writings of the physicians, already become too voluminous, and collected together into a complete body of medicine.

Mackenzie notwithstanding, in attributing to *Oribasius* the first directions relative to the utility of exercise on horseback, observes, that Galen distinguishes two kinds of exercises. † *Active exercise*, in which the body moves itself spontaneously; *passive exercise*, in which the body is moved
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* Collect. Med. lib. vi, c. 24.

† De Sanitat. tuend. lib. ii, c. 11.

by a foreign impulse: and that he remarks, that exercise on horseback is a mixed kind of exercise, participating of each. Mackenzie moreover observes, that the ancients being unacquainted with the use of stirrups, this exercise was still more fatiguing to them than to us. He adds, that many ages before Oribasius, the Greeks reckoned riding on horseback healthful; and quotes, on this subject, a very remarkable passage from a work of Xenophon, intitled, *οικονομικός*, — on domestic economy.† This passage is to be found in the dialogue between *Ischomachus* and *Socrates*. *Ischomachus* having related to *Socrates* the exercise which he performed on horseback, to inspect the labour carried on in the country: *Socrates* highly approves of this mode of exercise; “which,” says he, “gives you at the same time both health and strength of body,” — τὸν ὑγιάνει καὶ τὸν βελτιώνει.

Aetius, born in the city of Amida, in Mesopotamia, is placed by Freind at the beginning of the sixth century. He has added little to what Galen advanced relative to hygiene. He treats of this subject particularly in the fourth book of the first Tetrabible. He is somewhat more particular than Galen in his remarks, on the health of infants, the choice of nurses, &c. In the third book, he descants at large on the use of exercises, frictions, and baths, and yet advances nothing new upon the subject. But in the preface to his first book, he speaks of the changes which the sensible qualities

† Mackenzie's quotation corresponds to an edition which he has not specified. He only says (Xenophon in his *economics*, lib. ii, § 3). The book intitled *Economics*, is not divided into two in the *folio* edition of Paris, 1725. This book makes the fifth of those called *οικονομικὰ βιβλία*, or *Metrabiblia*; and the passage in question is to be found there, pp. 850, E, and 851, A and B.

qualities of spirits, in their progress to maturity, experience, and of the different properties in which these changes result. Those who will peruse this dissertation, ought not to suffer themselves to be disgusted by a phraseology, which the accuracy of modern physics and chemistry may consider as reprehensible. Amid the exceptionable theories of these times, they will be able to recognize observations, which evince that the author was habituated to the study of nature. *Lorry* highly estimates this piece of *Actius*; and we may here, with propriety, *en passant*, caution those who wish to derive any advantage from reading the ancients, to attend less to their manner of explaining the phenomena of nature, and to their modes of expression, than to the solidity of their ideas, and to the firm basis upon which these explanations are built. By adopting this plan, we may find in the writings of the ancients, some valuable remarks, some important facts, and even the elements of some modern discoveries; of which, it may excite our astonishment that they should ever have a glimpse, furnished as they were with such scanty means of assistance.

Oribasius and *Actius* have adopted and extended the Galenical doctrine concerning the degrees of heat and of cold, but they still limited its application to medicine.

Paul of Aegineta is possessed of as few claims to originality, as an author, as those who have just now been mentioned. His first book contains the whole of his disquisitions on subjects relative to the preservation of health; and all the information which we receive from him is to be found in the works of his predecessors. With this author, we close all the observations which we have to offer concerning the second period of the first epoch. We perceive, that, after Galen, all the writers who belong to this period, with the exception of *Alexander Trallius*, who wrote
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nothing on the doctrine of *hygiène*, have left us almost nothing which they had not derived from foreign sources. We are nevertheless indebted to them for the preservation of a variety of details, relative to the customs of their times, and especially to the gymnastic art, to the use of baths, of exercises, and of frictions; and we moreover derive from them very full and accurate information respecting the state of medicine, in the ages which preceded their own.

THIRD PERIOD OF THE FIRST EPOCH.

I, ARABIAN SCHOOL.

THE third period, of which I am going to exhibit a very rapid sketch, offers to us, if I am permitted so to express myself, three dynasties almost contemporary; but among which, that of the Arabians acquired a decisive ascendancy, and impressed its character upon the two others by an obvious preponderancy.

These three dynasties, or rather these three schools, are the *Arabian school*, the school of the *modern Greeks*, and that of *Italy*, or the *school of Salernum*. The Arabian school has the priority in point of time.

Freind points out to us two principal epochs, at which the Grecian medicine had been able to penetrate into the eastern parts of Asia. The first was the alliance of Sapor, king of Persia, with the emperor Aurelian, whose daughter he married. The emperor commissioned a number of physicians to accompany his daughter, and these probably established themselves at *Nibur*, or *Nisabur*, the capital of Chorazan, built by Sapor in 272, in honour of his queen. Schools, and generations of physicians, were consequently formed in that city; as we have seen that the race of the

Asclepiades hereditarily practised medicine in Greece. Hence it is, observes Freind, that the most celebrated Arabian physicians were educated in the oriental regions, and there acquired their knowledge of literature and of medicine.

It is nevertheless certain, from what the same author, in his essay on the history of medicine, under the article of *Uranus*, has observed, that the Arabians had not made any very distinguished progress in this art, previous to the second epoch, that is, before *Alexandria was taken* in 642. It is believed that, on that memorable event, the Saracens, who attached great importance to medicine, in which Mahomet himself pretended to be very learned, must have saved, from the general wreck of the Alexandrian library, those books alone to which they ascribed some merit in this respect. But, although this supposition should be groundless, it is assuredly very natural to conclude, that from an intercourse with those learned men, who at that period resided in Alexandria, and to whom, as is well known, *Amru*, the general of the caliph *Omar's* forces, was very favourably inclined, the Arabs might have imbibed a species of knowledge, analogous in other respects to their taste; and thus have diffused over the east the principles of the Greek medicine.

Freind observes, that the first translation of the works of the Greek physicians in the east, had been made into the Syriac language, by *Aaron* in 622; at which period *Paulus Aegineta* also lived. And consequently the origin of the well-known Arabian school can be traced back to the age of the last survivor of the ancient Greek physicians.

The Arabian writers whose works have come down to us, ought to be divided into two schools, that of the east,
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and that of the west. The *eastern school* is considerably older than the other. *Serapion* and *Rhazes*, however, who were the most ancient of those whose writings have reached our time, lived, the former, about the end of the ninth, and the latter at the beginning of the tenth century. And the last writer of this school, whose name deserves to be mentioned, is *Avicenna*, who lived in the end of the tenth and the beginning of the eleventh century. But, prior to these, there were many other celebrated writers, whose works have perished in the wreck of ages; but whose memory has been handed down to posterity by *Hally Abbas*. Among these were *Aaron*, *Masferjave*, the family of the *Bachtisua*, *Honain*, *Isaac* the son of *Honain*, and the elder *Mesué*. To these succeeded *Serapion* and *Rhazes*; and this latter physician was followed by *Haly Abbas*, whose work is attributed by some critics to *Isaac*, surnamed the *Israelite*, an author prior to *Rhazes*, but none of whose writings now remain. This work, intitled *Pantechne*, or the whole essence of the art, is an abstract of all the preceding writers, almost all of whom have been copied themselves, or have copied the Greeks, and who yet have left us excellent observations, and very accurate descriptions of diseases unknown to, or imperfectly observed by, the ancients. *Avicenna* succeeded *Haly*, since he was born in the same period at which the latter published his work, that is in 980.

We may trace back the origin of the western school to the era at which *Abdarhama*n descended from the family of the *Omniades*, whom the *Abassides* had deprived of the caliphate, fled to the west, and was received in Spain, where the *Saracens*, who had already been established in that kingdom since the year 711 of our era, acknowledged him as their legitimate caliph. This event took place about

the year 756, or the 139 of the *hegira*. At that period, *Almanzor* reigned in the east, and patronised the arts and sciences. The caliphs of the west discovered themselves emulous of the same glory; until the Moorish kings of Morocco seized upon their throne towards the year 1030, or the 420 or 421 of the *hegira*, and displayed the same attachment to the arts. Nevertheless, the first known writer upon medicine, whom the western school produced, was *Avenzoar*, a contemporary of *Avicenna*. We learn from his authority, that celebrated schools were established in Spain, and especially at Toledo, previous to his own time; but it also appears that, till the age of *Averrhoes*, a native of Cordova, and who died in Morocco in 1198, or 595th year of the *hegira*, the writers of the eastern school were little known in that of the west, either from the effect of wars, or on account of the hatred which the house of the *Ommiades* harboured against that of the *Abassides*. *Avenzoar* might have been a contemporary of *Avicenna*; and, at the same time, his life might have been nearly prolonged to the time of *Averrhoes*, if it be true, as historians assure us, that he lived to the age of 135 years. They add, that he closed this very long life without experiencing any infirmity throughout its whole course. After *Averrhoes*, Freind places *Albucafis*, whom he considers as the same person with *Alzabaravius*, and who is the last writer of the western school deserving of any consideration. The period in which he lived is consequently fixed near the thirteenth century.

There is another class of physicians, who may be considered as appertaining to the Arabian schools. This class is composed of the *Jews*. They practised medicine, both in the east and west. Freind remarks, that they had an academy in Asia, from the 204th year of our era; and that

that they had a share in the medical establishments of the Moors in Spain in 714; that, especially about the end of the tenth century, they were throughout Europe generally the best instructed in the sciences cultivated by the Arabians, and that they were ordinarily invited as physicians to the courts of the caliphs, the kings, and even of the popes. At the commencement of the ninth century, the Jews *Farragut* and *Bubabilya* were physicians to *Charlemagne*; and digested the tables called *Taccuni sanitatis*, or tables of health. These tables were the same with those published under the name of *Ellubasem Ellimitar*, or, at least, in Freind's opinion, the former had the greatest resemblance to the latter.

These schools have contributed very little to the doctrine of *hygiene*. *Rhazes* and *Avicenna* extracted from *Galen* all that they have written on this subject. Among the books dedicated by *Rhazes* to *Almanzor*, prince of *Chorazin*, there is one intitled *On the Preservation of Health*; and *Avicenna's* writings on this subject are still less deserving of the attention of those who have perused the ancient Greeks.

On this subject many observations may be made with advantage.

1^{mo}, Gymnastic exercises were perverted and insensibly abandoned, in proportion as the Roman empire lost its splendour. It does not appear that, after the era of the Arabians, any part of the ancient gymnastic art was practised, if we except bathing, public establishments of which were preserved in the east.

2^{do}, Two great errors crept into the speculations of physicians concerning the doctrine of *hygiene*; the first was that of the influence of the celestial bodies on the health, the life, and the fate of man; and the absurd pretension of

reading their destinies in the revolutions of the planets. The second was that of searching in particular medicines for antidotes against diseases, and of ascribing to these the exclusive virtue of preserving the health of the body. The imagination of the Arabs, fondly attached to the marvellous, was better suited to researches of this nature, (destitute as they were of foundation, and incapable of being defended by any rational proof), than to the slow progress of observation, which proceeds only step by step, which never hastily overleaps any interval, and which places faith in any discoveries, only in proportion as the connection of facts subsisting between them demonstrates their agreement, and establishes their truth. It was also a very acceptable discovery to find in a *panacea* the means of prolonging life without renouncing any of its sensual enjoyments, and without being obliged to have recourse to the true antidote against the evils by which it is abridged, that is, to prudence and temperance. Galen informs us, that from the time of Herophilus, (334 years before our era, according to the author of article ANCIENT PHYSICIANS,) compositions, to which great efficacy in the preservation of health was attached, were known under the pompous title of the *hands of the gods*. Pliny also speaks of certain *panaceas*, much celebrated in his time. What virtues have not been ascribed to the *theriac* of *Andromache*? The Arabians invented different sorts of this drug. *Roger Bacon*, *Lord Verulam*, the great Bacon himself, attached credit to these absurd premises; and the chemists, lastly, filled up the measure of these extravagancies, which before their time required only to be associated to the ridiculous pretension of making gold.

3^{tio}, The doctrine of the four degrees, passed from the Greeks who succeeded Galen to the Arabians. Among these,

these there were however some who rejected it; and Freind remarks, that *Averrhoes* accuses *Alkind*, author of a work concerning the degrees of medicinal substances, of having carried the niceties of these distinctions too far, and of having attempted to form the scale of the properties upon the model of the scale of musical tones, and of arithmetical progressions. He reproaches him with having misunderstood the sense of Galen, in what he advanced on this subject. Most of the authors of this description have limited the application of this system to medicine alone; but Charlemagne's physicians, *Farragut* and *Bubabilya*, extended this doctrine to aliments, and to all the substances which, after the example of Galen, those physicians denominated *non-naturals*. The work intitled *Taccuni Sanitatis*, and published in the name of *Elluchafem Ellimitar*, a physician of Bagdad, is ascribed to them. All the alimentary substances to which their knowledge extended, and all the objects connected with *hygiène* are arranged in these tables called *taccuni*. These tables are divided into compartments, called *domus* or *houses*, appropriated to the different kinds of observations relative to each subject. In the fourth column or house, are arranged the degrees of heat, of cold, of moisture, or of dryness, which in their opinion corresponded to each object. *John Schott* has published an edition of this work, with that of *Albenguessit* and *Alkind*, as well as of the treatise of *Bubabilya*, concerning similar classifications of diseases, under the title of *tacuni aegritudinum*. He has subjoined figures which represent each sort of aliment, and every thing characteristic of the six objects termed *non-naturals*. This edition appeared in Straßburg in 1531. One would blush to dwell for a moment on these absurdities, if they did not essentially belong to the history of the art, and if they had not seriously occupied the atten-

tion of the schools from the time of Galen to the revival of letters in Europe ; a space which comprehends thirteen centuries : what a space, and what a void !

II, SCHOOL OF THE MODERN GREEKS.

THE modern Greeks will not afford us any very extensive field for observations. Freind concludes the last of the ancient Greeks with *Paulus Aegineta*. *Palladius*, *Theophilus*, and *Stephen of Byzantium*, although the age in which they lived be very uncertain, are placed by him at the head of the modern Greeks ; and, moreover, their works contain nothing connected with the subject of which I am treating. The others, also, form a series very barren of information adapted to our purpose. They extend from the tenth to the thirteenth century, that is, from *Nonus* to *Myrepsus*. In this catalogue, still less remarkable than numerous, *Simeon Sethi*, a transcriber of *Mich. Psellus*, left us some remarks on the nature of aliment, and dedicated this treatise to the emperor *Michel Ducas*. But the most remarkable person of this series is *Actuarius*. His works include many objects deserving of attention ; and are very instructive concerning the state of medicine in his own time, and in those which preceded him : besides this, they possess the merit of being well written ; a character to which the authors of this age are little entitled ; but they contain few remarks relative to *hygiène*. The third book, on the method of curing diseases, contains some hints concerning the preservation of health, concerning regimen, the choice of aliments, the use of baths, and of exercise. Of these objects we have a summary view from the ninth to the twelfth chapter ; but no new information is to be derived from this disquisition. It is remarkable, that in the sixth chapter of the

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the fifth book, amid a group of antidotes, the composition of which was known to Actuarius, he describes one which he denominates *sanitas*, and of which he assures us, that a dose of the size of a lentil, taken daily in wine, would defend the person to whom it was administered from all kinds of infirmities and diseases throughout the whole period of his life. The description of this *nostrum* alone gives us an idea of the author's character, and of the knowledge prevalent in his time, without being under the necessity of subjoining that this same *recipe* was also endowed with the property of expelling *demons* and *evil spirits*.

III, SCHOOL OF SALERNUM, AND EUROPEAN PHYSICIANS, TO THE REVIVAL OF LITERATURE.

SALERNUM had already been celebrated from the middle of the seventh century, for the cultivation of letters; and the Hebrew, Arabic, and Latin languages, were publicly taught in that city. Such was the reputation of Salerno in the time of Charlemagne, that in the year 802, this emperor founded a college in it; the first, observes Freind, which had been established in Europe: at least we shall not with some authors contend that the schools of Bologna and of Paris were instituted prior to that of Salerno. We may leave these researches to the vanity of societies, who sometimes seem to glory more in dates buried in the recesses of ages, which insure them the merit of ancient usefulness, than in the number of their works and labours, by which they ought to have proved their existence.

The first distinguished person whom this school produced was *Constantine* of Carthage, surnamed the *African*. He was master of all languages; and was in all appearance,
says

says Freind, the first who imported into Italy the knowledge of the Greek and Arabian medicine. He lived towards the end of the eleventh century. The date adopted by Freind is 1060. He was invited to Salernum by Robert Guiscard. But we cannot quote him among the authors who improved the doctrine of *hygiène*.

The school of Salernum had soon become celebrated, by a work for which it was indebted for almost the whole of its reputation. It was that composed by *John of Milan*, and addressed, in name of the whole school, to Robert duke of Normandy, the son of William, at that period the titular king of England, although he afterwards declined that throne, who passed through Salernum in his way from the Holy land. It is on this account that the work in question begins with this verse,

Anglorum regi scribis ichola tota Salerni.

Robert had been wounded in the arm, in which a fistulous ulcer remained, that required the advice of the physicians of Salernum. The work of these gentlemen is entirely devoted to precepts respecting the doctrine of *hygiène*, with the exception of one chapter concerning the ulcer, and some others on the practice of blood-letting, and certain other remedies. They dwell chiefly on aliments, and their use; but are very scanty in their observations on the other departments of *hygiène*. But the only remarkable and astonishing circumstance respecting this performance, once so very celebrated, is the reputation which it had acquired, and the number of commentators who had been at the pains to make it the basis and theme of their reflections. Among these are *Arnaud de Villa-nova*, *Curion*, *Crellius*, *Constanson*, *René Moreau*;* and, in our own time, a physician of the faculty of Paris, *Levacher de la Feutrie*.

Moreau's

* See René Moreau's own work.

Moreau's work contains many interesting observations; and in the commentaries of *Arnaud de Villa-nova*, there are also many remarks which merit attention, and are worthy of another vehicle. *Lommius*, in the dedicatory epistle of his commentary on the first book of *Celsus*, intitled, *de Sanitate tuenda*, gives a very apposite character of the physicians of *Salernum's* work, when he says of this production, "*quod vix scio, an quicquam in literis medicorum elegantius sit, aut indoctius.*" In this letter he with great propriety expresses his astonishment to see physicians neglecting to read the ancients, especially *Celsus*, for the purpose of devoting themselves to meditations on so very miserable a performance.

Mackenzie having occasion, when treating of the *Schola Salernitana*, to advert to those physicians who employed themselves in writing verses, places *Castor Durante*, physician to Pope *Sextus Quintus*, first in order after *John of Milan*. He forgot *Eobanus* of *Hesse*, who wrote with, at least, an equal degree of elegance, and lived about the end of the fifteenth and beginning of the sixteenth century. He acquired great reputation by his poems, insomuch that some of his contemporaries stiled him the *Homer*, and others the *Ovid*, of his time. He compiled a poem *De tuenda bona valetudine*, divided into three parts: the first comprehends the elements, the second the general precepts of *hygiène*, the third some reflections upon the properties of medicines. There is subjoined to it a small poem of *J. B. Fiera* of *Mantua*, intitled *Cœna*, and dedicated to *Raphael Rearius*. *Moreau* speaks with commendation of the works both of *Eobanus* and *Durante*. But *Mackenzie* considers *Dr. Armstrong's Art of preserving Health*, as by far the best poetical performance on this subject. As to myself, I shall join to it a Latin poem, full of imagination,

of beauties, and of elegance, which Citizen Geoffroy has published in our own time, intitled *Hygiène*, and where the science of sound physics appears to acquire new éclat from being clothed with the charms of poetry. Had it been my intention to quote every remarkable performance of this kind, I would have mentioned the *Pedotrophia*, or the art of suckling children, of *Scavola de Sainte Marthe*; and the *Callipedia*, or the education of children, by *Claude Quillet*, (*Calvidius Letus*), of which there have been two editions very different in respect to the following circumstance: in the first *Mazarin* is treated with all the severity of satire; but in the second, being bribed by the douceurs of that minister to alter his opinion, the author has made him the subject of a fulsome panegyric: a melancholy example, and but too frequently copied, of the venality of men of letters! But it would be a long and useless labour to give a complete catalogue of all the poetical works on *hygiène*, especially if we credit *René Moreau*, who reckoned upwards of 140 that had written on this subject before his time; (he lived in the time of Cardinal Richelieu). My object, however, is not so much to give a list of authors, as to trace with all the ability of which I am possessed, the rise and progress of the art. In truth, it is not with the history of individuals, or with the number of artists, that we are chiefly concerned; but only with the accessions which they have made to the labours of their predecessors, and with the new rays of light, which their writings have thrown on the science of man and on the art of his preservation.

The *Schola Salernitana*, which occasioned this short digression, or at least the work to which its name has been affixed, appeared in the beginning of the twelfth century, that is, after the year 1100. This school, as well as those
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of Paris and Bologna, have conferred on mankind a still greater obligation, by diffusing over Europe a taste for study: and from that moment, a multitude of universities and of colleges were founded in Italy, in France, in Germany, and in England. The twelfth, thirteenth, and fourteenth centuries were the eras of the births of almost all the universities; the first *foci* of learning in times of ignorance; and since, the monuments of Gothicism in times of learning.

Roger Bacon, Arnaud de Villa-nova, Peter de Albano, &c. appeared in England, in France, and in Italy, towards the end of the thirteenth and at the commencement of the fourteenth centuries, before the revival of Grecian literature. They distinguished themselves above all their contemporaries by talents, which, in another period, would have greatly forwarded the progress of the art. Astrology and the folly of alchymy infected most of the celebrated men of those times. *Arnaud de Villa-nova* was the only writer whose labours contributed in any remarkable degree to illustrate the doctrine of health. He composed a treatise *De regimine Sanitatis*; another on the same subject, addressed to the king of Arragon; a treatise *De conservanda juventute et retardanda senectute*; and a commentary on a part of the work of the physicians of Salernum. These treatises contain excellent reflections; and in different parts of them the author speaks of the choice of air, relative to the exposure of houses, and to habitations in general.

FOURTH PERIOD OF THE FIRST EPOCH,
FROM THE REVIVAL OF LITERATURE TO THE TIME OF
SANCTORIUS.

TOWARDS the end of the fourteenth and beginning of the fifteenth centuries, *Emmanuel Chrysoloras* began that revolution which diffused over Europe the knowledge of Greek literature, and terminated the reign of the Arabians. This revolution was completed by the taking of Constantinople in 1453. It did not eradicate the prejudices of astrology; and, in the same time, about 1470, *Marsilius Ficinus* wrote a treatise on the preservation of health and the prolongation of life, (*de vitâ studioforum producenda*), in which he inculcates the propriety of consulting the astrologers at every septennary period, or climacteric year, of having recourse to magical practices, and to the use of certain antidotes against the malignant influences of the principal planets.

Mackenzie observes, that this unfortunate folly for a long period continued to infect even physicians themselves; and that 150 years after, that is, at the commencement of the seventeenth century, a German physician, *Martin Panfa*, had equally imbibed astrological prejudices, which he disseminated in a treatise intitled, *Aureus libellus de prolongandâ vitâ*, published in 1615, and dedicated to the senate of *Leipfic*.

If we should also review the very numerous performances which, from the revival of letters to the epoch of Sanctorius, have appeared on the doctrine of health, and especially on the use of aliments, we would find them distinguished by a great share of erudition, by an accurate knowledge of the ancients, a more refined doctrine, and
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by a sounder judgment, than those of all the preceding ages: but we would meet with little additional information to what had been advanced by the ancients, if we except what regards the practices of the times, and the regimen adopted in this period. In this manner has *Platina* of *Cremona* given us an idea of the cookery of his age; and *John la Bruyere de Champier*, (*Jo. Bruyerinus Campegius*), has left us a valuable treatise concerning the articles of food used in France in the sixteenth century; a treatise which has supplied *Legrand Daussy* with a great part of the curious observations, collected by him in a well written work, on the private life of the ancient French. *Boerhaave* distinguishes the work of *La Bruyere Champier* from all those of that age, and proposes it with the tract of *Melchion Sebiz*, (*Melchion Sebizijs*), an author of the seventeenth century, as one of those who may supply the place of a great number of others.

The works which, considered in their relation to the doctrine of *hygiène*, are distinguished above all others in the period under review, are, the treatises of *Cornaro*, on the advantages of a sober life; and that of *Mercurialis*, on the gymnastic art among the ancients. To which may also be added Chancellor Bacon's treatise, intitled *Historia Vitæ et Mortis*.

Cornaro deserves great attention, because personal experience furnished the materials of his book; because he proves that man, by the study of himself, and by having the courage to render himself superior to the attractions of pleasure, in order to adopt the measures dictated by reason and necessity, can improve his constitution, and repair his organs, enfeebled by excessive indulgence; because he instructs us in what we are not sufficiently apprized of, the difference, viz. between the measure necessary to supply our wants,

wants, and that requisite to gratify our pleasures; how much we are the dupes of our own peculiar sensations; above all, since the art of perverting the gifts of nature, has created us artificial wants and factitious appetites, and taught us to call every feeling by the name of hunger which is not blunted by satiety.

Lewis Cornaro, who died, at the age of more than 100 years, in 1566, wrote four treatises on the advantages of a sober life. He was 83 years when he wrote the first, 86 when he published the second; the third appeared after he had completed his 91st year; and the last was composed in the 95th year of his age. From the age of 35 to 40, he saw himself attacked with a multiplicity of diseases, which seemed to threaten him with a speedy dissolution. Those complaints were pains of the stomach and of the loins, with attacks of colic, fits of the gout, and an insatiable thirst accompanied with fever. Remedies were of no avail. His physicians declared to him, that the only remaining resource consisted in a regimen of extreme sobriety and regularity: he resolved to adopt it: he soon perceived the utility of their advice: the quantity of food which he daily consumed was reduced to twelve ounces of solid nourishment, composed of bread, of the yolk of eggs, of flesh, fish, &c.; and the quantity of liquid (the Italian text mentions *of wine*) amounted to fourteen ounces.

Cornaro has made many other observations worthy of remark. The first is, that adhering to so rigid and so strict a regimen, he found himself wonderfully little affected by the events and accidents which are productive of fatal consequences to those who do not live with the same regularity; an advantage which he experienced on two contingencies. One of these occasions was, when a terrible legal process, carried on principally against himself, yet cost his
brother

brother and many of his relations their lives, had no injurious effect whatever on his health: The other, when overturned in his carriage, and having his head and whole body bruised, his foot and his arm dislocated; he recovered without the aid of any of those means which are considered as indispensable to effect a cure in similar cases.

Another observation, equally deserving of attention, respects the obligations which habit imposes on us. Cornaro, accustomed to live upon twelve ounces of solid food, and fourteen of liquids, or of wine, (*oncie quattordici di vino*), suffered himself to be persuaded, at the age of 78 years, to increase this proportion to fourteen of the former, and sixteen of the latter. His stomach became disordered; he fell into *ennui* and melancholy, and was seized with a fever, which continued thirty-five days; and from which he recovered only by returning to his former proportions.

We may give the history of Cornaro a place among the fine experiments which have been made on the subject of *hygiène*; and which consequently have contributed to fix the principles, and to accelerate the progress, of the art.

Leonardus Lessius, a celebrated jesuit, who lived about the end of the sixteenth century, before the death of Cornaro, struck with the beauty of this example, wrote a work on this subject, which he closes with a list of distinguished men, whom the sobriety of their lives carried beyond the ordinary period of human life. This book is intitled *Hygiæcon, seu vera ratio valetudinis bonæ*; and the first edition was published in 1563, at Anvers. Lessius was not the only person whom the example of Cornaro had determined to write on the preservation of health. *Thomas Philologus of Ravenna* had already written a treatise, intitled *De Vita ultra annos 120 protrahenda*, printed at Venice 1553. He alludes to one period at which Venice witnessed many of

seminators at the age of 100 years appearing in public, surrounded with the veneration which their age, their dignities, and their virtues, procured to them; and ascribes to couchery, and to the want of sobriety, the paucity of similar examples in his own time. He was the first, observes Mackenzie, who censured the establishment of cemeteries in the midst of cities. *Cardanus*, a man whose accuracy to science would have been infinitely greater, had his judgment equalled his genius and erudition, also wrote four books on the preservation of health. In the three first he treats of aliment, and in the fourth of old age. The example of *Comaro* is the theme of his admiration, and constitutes the foundation of his precepts. He censures *Galen*; and alleges, in proof of the justice of his reproaches, that that celebrated physician died at the age of 77 years: but *Cardanus* was fully persuaded that himself would not survive his 75th year. Another proof of this extraordinary genius's want of candour and accuracy is, that he condemns exercise as injurious to health; and that comparing the longevity of trees to the common duration of the lives of animals, he attributes the long life of the former to their being destitute of locomotion.

Among the productions of this age, the last place ought not to be assigned to *Jerome Mercurialis's* treatise on the gymnastic art, in six books: the three first books treat of different objects relative to exercise, and to the different kinds of exercises practised among the ancients; the three remaining of the effects of these exercises, and of their utility to strengthen the body, and to preserve its health. It would be difficult to unite a sounder judgment and a greater store of erudition, than this excellent author exhibits. He is, however, accused him of such a prepossession in favour of the ancients, that he is not only entirely silent on the

the subject of the exercises in use among the moderns, but even condemns riding, as productive of inconveniencies injurious to health : without doubt, observes Haller, because this exercise was not one of those in which the ancients delighted to engage. With regard to this first reproach cast on our author, we ought in some measure to restrict its application. It must however be allowed, that although *Mercurialis* has, in imitation of the ancients, praised riding in the ninth chapter of his third book ; although, in the eighth chapter of the sixth book, he speaks of it as a species of exercise highly calculated to maintain the health of those who do not labour under any disease, and useful even in imperfect digestion : in his last chapter, he descants at sufficient length upon the inconveniencies of hard trotting or galloping in diseases ; and repeats, with some degree of complacency, the reproaches with which Hippocrates and some others have loaded riding, especially hard riding or cantering, imputing to this kind of exercise, when continued for a long time, diseases of the inferior extremities, and impotence, brought on by long pressure on the testicles. This disease was common among the Scythians. But we ought to add, as has already been observed, that the ancients, unacquainted with the use of stirrups, must have felt in a still greater degree these inconveniencies. With regard to ambling, or a broken pace, (*equitatio in asturconibus vel tolutariis*), he prefers it to every other species of riding, on account of its easiness and sprightliness. In respect to the other accusation brought against *Mercurialis*, of having silently passed over the exercises practised by the moderns, there is also some foundation for it. There is however little difficulty in excusing him, when we consider that since the revolution of christianity, and that which the Arabs had introduced into Europe, gymnastic exercises

had gone into absolute defuetude ; and that, properly speaking, he had no reason to make any farther mention of the gymnastic art.

The date of the treatise written by Bacon, intitl'd *Historia Vitæ et Mortis*, should be fixed about the end of the period and epoch of which I am now speaking. The author's object is to investigate the causes of natural death, and, in this way, to ascertain the means of protracting, as far as is consistent with the laws of human nature, the ordinary term of life. The living man sustains a continual loss of the energies of life, and his losses are continually repaired ; but this restoring faculty is at length exhausted, and man dies. Human life would be protracted as long as the organization of our bodies permits, by diminishing the activity of those causes, which dissipate, weaken, and destroy, and by maintaining the energy of that power which repairs, softens, and renders flexible, the parts whose induration resists the effects of the restoring faculty. It was upon these simple ideas, that the illustrious *Bacon* established plans of researches, worthy of being deeply considered, and which even at present can furnish great and important materials for reflection. In most of the subjects of which he treats, *Bacon* himself has rarely put his finishing hand to the work ; but he always presented vast views, plans of researches pregnant with important consequences, a striking renunciation of prejudices, and of ideas accredited from habit, a continual appeal to experiment, a constant endeavour to adhere strictly to nature ; and to assume her for his sole and entire guide. *Bacon* was truly a great man, and placed, according to the order of time, between the era of the revival of literature and that of the first progressive steps of the physical sciences. He seems to have appeared for the purpose of terminating the barren admiration of the ancients, which

which pervaded the minds of men, of making the study of nature follow in succession the study of books, and of adding to the riches accumulated by the patient investigators of antiquity, the still more fertile produce of an active and of an indefatigable experience.

SECOND EPOCH,

THAT OF SANCTORIUS.

THE circulation of the blood had not yet been discovered; philosophers had not learned to estimate the weight of the air, and were still strangers to the phenomena of the barometer; the thermometer had not been invented; and the means of observation, hitherto imperfect and inaccurate, left to man, curious to study nature and to appreciate her phenomena, only the hope of guessing pretty nearly respecting them, and no appearance of being able to calculate the amount of his own observations.

Sanctorius appeared, and had already entertained the first idea of a thermometer, that of a fixed point, from which its graduation could commence, and of the application of this instrument to examine the degree of febrile heat. But what confers immortality on his name, is his fine suit of experiments on insensible perspiration, which he conceived with a degree of genius equal to the patience exercised in carrying them into execution. He conceived the design of comparing the food consumed with the quantity of excretions evacuated from the body, and of weighing them comparatively; of weighing the body itself in the different circumstances, connected with diet and evacuations; and by this means he formed a strict estimate of the quantity of ingredients which escape from the body through

the perspiratory pores. He accomplished still more : he observed with great sagacity the different relations and variations of this excretion, of which no theory had been offered previous to his time. He knew the modifications which it experienced from all the causes which affect the body, in what proportion it is augmented, diminished, accelerated, retarded ; the connection of its variations with the condition of the body, and with the sensations of uneasiness and of comfort, of levity and of weight, which affect us in the different circumstances of life. The whole doctrine of health is intimately connected with this system of observation, inasmuch, that the work of *Sanctorius* is itself a real treatise on *hygiene*. And to whatever degree of perfection many learned men, since his time, may have carried researches of this nature, the glory resulting from their labours has no more obscured his reputation than the lucubrations of ancient and modern physicians have effaced from our minds the recollection of the works of Hippocrates. The field is always vast ; it appears even to increase in extent at the present time ; but the space over which the first inventor travelled, still exhibits the posts which he established in the course, and upon which are constantly fixed the eyes of his successors and rivals.

Nevertheless, even before the time of *Sanctorius*, another person had first conceived the idea which this physician so ably developed and executed. This person, *Nicolas de Cusa*, wrote a dialogue concerning statical experiments, and the advantages which physicians might derive from their application to the human body, for the purpose of ascertaining the proportion of sensible and insensible evacuations. But men of genius had not made any progress in a career which he had only pointed out, and upon which none had entered before *Sanctorius*. *Nicolas* was born at *Cusa*, a small town

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of the electorate of Treves, and lived in the fifteenth century. *Sanctorius* was born at *Capo d'Istria*, in the gulf of Trieste, and appeared towards the end of the sixteenth century.

The body perspires, and the evacuation from the whole surface of the skin, and from the lungs, although almost insensible, is not on that account the less copious. It exceeds, according to *Sanctorius*, the quantity of all the other evacuations taken together. This evacuation chiefly takes place, and is more abundant in the morning, after the termination of sleep. Then the body, which has thrown off all its superfluities, returns to the same weight which it possessed at the same hour on the preceding day. The surplus of weight which the food and drink consumed had added to it, disappears, partly by the nutrition which repairs the loss it sustained, and partly by excrementitious evacuations. Such is the order of nature.

If perspiration be diminished, and the loss be not indemnified by other sensible evacuations, the body increases in weight, and sooner or later becomes diseased; or it is ultimately unloaded by a more abundant perspiration, and then returns to its former weight.

But the term weight of the body has two very different significations. In one sense, we understand by it the weight which the balance ascertains; in the other, the weight which is indicated by sensation. The weight pointed out by the balance is an augmentation of volume; that indicated by sensation, is an additional load, which results from a disproportion between the mass of the body and the activity of its powers. A body may be heavier to the balance, and yet lighter to the sensation; this is symptomatic of a great increase of its activity and vigour. It can be lighter to the balance, and heavier to the sensation: this is a sign of a great

great diminution of its powers, and of its natural activity. The body may be light in both these senses; it is then simply a diminution of substance. It can also be heavier in each of these meanings; this is a proof of its being overloaded.

The diminution of perspiration, demonstrated by the balance, is symptomatic of indisposition; and reciprocally, pains, sufferings, and all bodily disorders, as well as mental disquietudes, lessen the quantity of perspiration.

Excess of perspiration, excited by violence, is equally productive of disorders which affect the health; and the body can only recover its sound state by returning to regularity, and to the natural measure of perspiration.

An increase of all the other evacuations, points out, or produces, a diminution of perspiration, and supplies its place. But perspiration is the evacuation of robust people; evacuations by stool and urine especially, counterbalances it, and supplies its place, in weaker constitutions; and salivation in old men.

Perspiration is retarded or diminished by pains of body and disquietudes of mind, cold during sleep, excessive heat, when it causes tossing of the body in bed, the process of digestion, the effect of a medicine, the sensible evacuations augmented, too great a load of clothes and coverings, which fatigue the body.

Partial cold has greater influence on the process of perspiration, than the cold which affects the whole body.

Cold augments the perspiration of those who enjoy a vigorous state of health; but diminishes this evacuation in people of feeble constitutions. The heat which, in the hottest time of summer, excites painful sensations, interrupts perspiration; that, on the contrary, which suffers
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the perspirable matter to escape freely, is productive of no fatigue.

After taking food, the body perspires only one pound during the space of five hours; in the seven following hours, the quantity perspired amounts to three pounds; and during the four subsequent hours, it perspires scarcely half a pound. This is the time in which we ought to have recourse to a supply of food: it is also the period which should be selected for the administration of medicines.

Perspiration alone imparts a greater degree of relief than all the other evacuations taken together: the perspiration which follows sleep eases the body before any other sensible evacuation is experienced.

Nature is three days in re-establishing the proportion dissolved by the retention of only one pound of perspirable matter, in opposition to her laws.

In the space of a month an increase of weight generally supervenes in the human body, which disappears at the end of the month by a crisis; this crisis is induced by means of a copious discharge of turbid urine. It discovers itself by a degree of lassitude, and heaviness of the head, and appears to supply the place of the periodical evacuations of the female sex.

Would you wish, by an examination of the insensible perspiration, to fix the proportions favourable to the prolongation of health, and of life, to an extreme old age? observe, after a pretty liberal repast, what quantity of perspirable matter will be evacuated at the end of twelve hours. Suppose, if you please, this to amount to fifty ounces: observe then, after a day of fasting or of abstinence, which shall not have been preceded by any excess, the loss which you shall have sustained. Let us suppose this to be twenty ounces:

ounces : take a middle term between these proportions of regimen, and you shall obtain, says *Sanctorius*, a measure which will produce a perspiration of thirty-five ounces : this will be the measure required.

The means of prolonging the existence of old men, would be to maintain the flexibility of their organs, and a free perspiration.

Such are the principal positions which *Sanctorius* has established concerning the general system of insensible perspiration. He has not published his experiments in detail, but recorded only the results. Accurate observations have since demonstrated, that these results are not all of them equally exact ; allowance, however, ought to be made for the variations of which difference of climate and of temperature are necessarily productive ; for it must not be forgotten that *Sanctorius* made his observations in Italy and that the results obtained by *Dodart* in France, *Kell* in England, *Gorter* in Holland, *Robinson* in Dublin, *Rye* in Cork in Ireland, and *Linings* in South Carolina, have demonstrated, that upon the supposition of the general influence deduced by *Sanctorius* from his experiments being perfectly well-founded, the proportion of instantaneous perspiration must nevertheless vary from difference of temperature, whatever in other respects may have been the strength and vigour of the temperaments of the subjects upon whom the experiments are performed.

These first principles, laid down by *Sanctorius*, are collected together in the first section of his work : in the subsequent sections he examines the influence of the atmosphere, of baths, of the seasons, and of the different hours of the day, &c. ; that of solid food and drink, both in respect to their quantity and quality ; the effect of sleep and of watchfulness, of exercise, of venery ; and, finally,
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he ascertains the derangements which the passions of the soul occasion in the function of the perspiratory organ.

Sanctorius had no sooner opened this passage to fame, than jealousy, inimical to every species of glory, and more especially to that which is founded on the most solid basis, basied itself in undermining his reputation. That reproach by which stupidity is so deeply alarmed, the reproach of *innovation*; appeal to established practices, that power so victorious over slothful spirits; that pretended, that indolent respect for antiquity; so little creditable to it, and so fatal to the progress of the sciences, were all combined for the purpose of rendering abortive the observations of a man who had been willing to make some additions to the labours of the ancients. The inquisition however was not appealed to; but one *Obicius* published a work against him, under the insolent title of *Staticomastix*, that is, *the Scourge of Statics*. It is of no consequence to observe, that this man had his partizans; but his name has been preserved to posterity by that of *Sanctorius*, as the fame of Homer has transmitted to us the name of *Zoilus*.

THIRD EPOCH.

REVIVAL OF THE PHYSICAL SCIENCES.

THE state of the physical and mathematical sciences is not an inquiry foreign to the history of medicine. Slower in her progress than the experimental sciences, because she is almost entirely confined to contemplative observation, and because she is not permitted to avail herself of the aid of experiment, but under the greatest restrictions, medicine is illuminated by the reflection of the light diffused over the other departments of the study of nature. Of all the
branches

branches which compose our art, *hygiène* is that which has the most evident connection with the other physical sciences. We are therefore the more authorized in this place to review the grand epochs, distinguished by the most remarkable efforts of the human mind.

During the fifteenth and sixteenth centuries, the study of the classics had gradually re-established true principles, the results of observation. It performed a still more eminent service; it inspired active minds with the hopes of elevating themselves to the level of the ancients, of participating in their glory, of meriting in conjunction with them the honour of instructing and enlightening mankind, and of cultivating the field of nature, while engaged in the search of truth.

Astronomers had already subjected the opinions of the ancients to a new ordeal of examination. Nearly a century before, *Copernicus* had announced, that the sun is in the focus of the planetary system, and that the earth is carried round it, like Mercury, and Venus, and Mars, and Jupiter, and Saturn. This innovation of doctrine had not roused the attention of the schools, or awakened the jealousy of the ecclesiastical inquisition. The honour of this persecution was reserved for *Galileo*. The polarity of the loadstone was known; and the compass, invented many years before, served to guide the path of the mariner. *Kepler* had just calculated the orbits of the planets, and determined the laws of motion to which they are obedient. He was the first person who illustrated physics by the aid of mathematics. *Gesner*, *Rondelet*, *Mathioli*, *Dodoëns*, *Cesalpinus*, *Aldrovandus*, *Prosper Alpinus*, had already enriched natural history by their researches. The *Baubins* had lately diffused over botany the first rays of systematic observation; and this beautiful department of natural history began to assume

assume the shape of a science. Chemistry, still enveloped in mystery and enigma, was however indebted for many remarkable facts to the labours of *Roger Bacon*, of *Raymond Lully*, and of *Paracelsus*; and anatomy had already been cultivated with great success by *Fallopian*, *Vesalius*, *Botalus*, *Riolan*, and *Dulaurens*.

The seventeenth century commenced its career with great efforts and with great success. *Galileo* confirmed the doctrine of *Copernicus*, invented the telescope; and his pupil *Torricelli* demonstrated the gravity of the air; whose progressive diminution, according to the different heights of the atmosphere, was soon calculated by *Paschal*. This latter philosopher, at the same period, solved the principal problems of the equilibrium of fluids. *Harvey* proved, by incontestible experiments, the whole system of the circulation of the blood. *Astellius* discovered the lacteal veins. Endowed with less solid, but more ardent, genius, *Vanhelmont* shook off the yoke of antiquity; and with whatever justice he may have incurred the reproaches of the sage friends of nature, the fire of his enthusiasm undoubtedly hastened the birth of chemistry, and prepared her for exhibiting her wonders. In this manner was proposed an honourable struggle between the ancients and the moderns. *Descartes* opened the field of combat and of victory. He taught natural philosophers to calculate and to doubt; and in his *method*, prepared that instrument which, in a subsequent age, was to overturn the edifice reared by himself. It appeared that the schools wished to have their oracles. *Aristotle*, worthy of another species of worship, had been the idol of the universities; and *Descartes* became the object of adoration in his time.

CONCERNING THE PHILOSOPHY OF ART, AND OF
PHILOSOPHICAL STUDY.

AFTER having traced, with all the ability which I could exert, the unequal progress of the human mind, sometimes more rapid and sometimes more slow, and sometimes retrograde, in the road of observation; having now reached an epoch, when its accelerated march is, if I may use the expression, precipitated towards every point of the study of nature: let me be permitted to pause, and to examine what guides it had selected in this route; how it has had sufficient discernment to find causes in their effects, and, multiplying observation by experiment, to soar by the aid of reason to the knowledge of principles; to what laws it must be obedient to prevent its going astray in this career; how medicine and *hygiène* have been able to share in the general movement; and how it shall be competent for them in future ages to derive from it still greater advantages.

The art of making progress in the search of truth, is properly what we now understand by the term *philosophy*. Whatever may be the end which man wishes to attain, whatever may be the nature of the science which he proposes to acquire; let him investigate the connections and relations of objects with one another, for the purpose of arranging them into a whole, which facilitates their study and the acquisition of the knowledge of them: let him observe the different properties of their masses, and the manner in which they act upon each other, counterbalance, interfere, or participate in each other's motions, that he may be enabled to appreciate and calculate the laws to which their masses are subject: let him explore their component ingredients with an attentive eye, and observe their
element

element falling asunder or entering into union, and forming by their concurrence perpetual changes: let him thus daily increase his information respecting the mysterious transformations of nature; or let him consider this eternal principle of motion and of action in all living beings, increasing and reproducing itself, this singular faculty of perception and of sensation, which is considered to be the exclusive appurtenance of animals; and attempt to ascertain the direction which these two powers, seated in the internal parts of organized bodies, give to the laws of their masses, and to the combinations of their elements. In short, conversant in all these matters, from deep meditation on them, and fixing his eyes sometimes on himself and his fellow-creatures, sometimes the patient and docile pupil of nature, sometimes emboldened to become her interpreter, to solicit and importune her to reveal her secrets; sometimes believing that he has acquired the ascendancy over her, and can force her to deviate from her usual course, and pursue a new one, let him congratulate himself in being able to prevent or repair the disorders which threaten his existence. In a word, whether he attaches himself to natural history or to physics, whether he be a chemist, a physiologist, or a physician, he must in one and all of these pursuits be a *philosopher*; that is to say, while engaged in the study of facts, in arranging them according to those relations which enable him to perceive and to seize on their connections and their consequences, he must know how to methodize his observations, and to regulate his experiments, and still more to appreciate them, to deduce from them all the conclusions of which they admit, and no inference which they do not legitimately sanction. It is necessary, that having his imagination and enthusiasm under complete subjection, in the midst of all this intellectual exertion, he

may be able to form a proper judgment both of himself and of others, to separate what he clearly perceives from that of which he has only obtained a glimpse; to establish a distinct boundary between the field over which he has travelled, and the deceitful prospect that frequently unfolds itself to his view; to estimate the value of *theories*, and to distinguish those which are the complete and necessary result of facts, from those that are only the bond of connection between them, and merit only the name of *methods*; to avail himself of these provisionally, and only as of *Ariadne's* thread, not only to enable him to penetrate into the labyrinth, but also to direct him to find the way out of it. And thus let him proceed sometimes slowly, and sometimes with rapidity, always with caution, without losing sight of the true road which leads to the temple of truth.

To supply all these conditions, and to enable him to attain to the knowledge of truth, the philosopher has three guides, *reasoning*, *experiment*, and *calculation*. Hence arise three modes of operation. One is the art of deducing accurate inferences from established premises, such, for instance, are fundamental truths: this is what constitutes *rational philosophy*. The second is, that of proving these principles, and of confirming the inferences, by demonstrating them to the senses by means of experiment: this is what forms *experimental philosophy*. Lastly, the third is the art of measuring, of appreciating, and of verifying the sensible results of experiment by the aid of calculation: this is termed *mathematical philosophy*. From the combination of these methods of investigation result the complete demonstration of the truths which are the object of our inquiry. They reciprocally assist each other. Reason solicits the aid of experiment to establish her principles; and the inaccuracy of our senses requires the precision of calculation

lation to measure the extent and value of the products which result from experiment. It is not however always possible to avail ourselves at the same time of the combined assistance of all these methods. But we may constantly affirm, that a science has reached the acme of improvement when it can build its reasoning upon the basis of experiment, and confirm experiment by means of calculation. It is on this account that the knowledge of gaseous fluids, and the new methods of measuring caloric, by rendering almost all the elements of bodies, of which so great a number escaped without the knowledge of the ancient chemists, appreciable and susceptible of calculation, have enabled modern chemistry to take so brilliant a flight. And when she shall ascertain the proportions both of *light* and of *electricity*, which act so conspicuous a part on many of her operations, what degree of accuracy will she not impart to the precision at which she has already arrived? It is undoubtedly from our inability to separate from the air, to confine, and to calculate, all the emanations, whether odorous or inodorous, which change its properties, that eudiometry is still so treacherous and deceitful. It is, in fine, by that beautiful and enchanting harmony between reason, experiment, and calculation, that the admirable experiments of *Coulomb*, his excellent electrometer and his magnetometer, will always constitute a memorable era in the history of magnetism and electricity. *Medicine and physiology* still, unfortunately, present us with elements equally unsusceptible of calculation and certainty, and consequently with experiments too frequently inaccurate, uncertain, and deceitful. May the methods of availing ourselves of the aid of the sensitive and nervous organ, and of ascertaining the degree of its influence over the moving and contracting fibre, with which we have been supplied, enable us to approach nearer

to the point of perfection which we still observe at so vast a distance !

If, after having explained the resources by which the human mind can attain to the knowledge of the truth, we wish to satisfy ourselves in respect to the use it has made of the means thus put in its power, we shall see that the most memorable era of the *rational philosophy* ascends to the period at which *Aristotle* published his *logic*, a truly admirable performance, containing a masterly analysis of the human understanding, where, by the relation of two demonstrated propositions, which act the part of *things known*, he teaches the art of deducing from them a third ; that is, of finding out an *unknown truth*, whose existence is a consequence necessarily resulting from the truth of the two former propositions. From this source spring combinations, which, by their fecundity, link some truths to others, whose pedigree embraces every proposition which the mind of man can compass or ascertain. This art, carried to perfection by the meditations of the finest genius of antiquity, this geometrical method, transferred from the abstract sciences to other speculations of the human mind, has nevertheless, like all other excellent things, been egregiously abused ; and what ought to have been the touchstone of truth, and one of the most precious instruments of its research, has become the means of clothing error with the external semblance of what is right. Apparently, for a long period, the vehicle of all the nonsense and puerilities of the schools, syllogism, in the estimation of some modern philosophers, deserves to be laid aside as a dangerous weapon. But whatever care may have been taken to disguise its forms, or to narrow its limits, whenever inferences are deduced without comparing them with their premises, or without giving a full demonstration of the latter, our process of reasoning

reasoning must necessarily be false and illogical. Authority has for a long time usurped the place of demonstration, not less in medicine than in every other branch of science; and prejudices must be the offspring of authority, when unsupported by observation.

Bacon and *Descartes* stood forth as the opponents of authority; and, from the time of this last philosopher, a predilection for experiment began to overturn many opinions which had obtained a currency on the faith of the ancients. We shall therefore refer the most memorable epoch of the *experimental philosophy*, not less to him than to the age in which he lived; and if, in our profession, any individual could claim the honour of having created this species of philosophy, this person, as has already been observed, would be *Sanctorius*. But experiment, while it makes an impression upon our senses, does not always enable them to comprehend the phenomena which it presents to them. By deducing consequences more comprehensive than the facts which are their premises, by generalizing partial relations, by laying hold of one only more prominent and sensible than the rest, from amidst an assemblage of causes, splendid theories have been engendered, which seemed to have experiment for their basis, and which experiment has overturned. To this subject, the remarkable expression of Hippocrates, "*experiment is deceitful, and to form a judgment of it is a difficult (or dangerous) task*," — *ἡ δὲ πείρα σφαλερή, ἢ τε περισὶς χαλιπρή*," is very applicable. And what art has given more indubitable proofs of the truth of this assertion than the art of medicine?

We must then have recourse to calculation for the purpose of appreciating the value of experiment. And it is at the commencement of the eighteenth century, at the epoch when Newton demonstrated the power of calculation, in

unfolding the theories of attraction, of light, and of colours, that I place the most brilliant period of the *mathematical philosophy*. It was this philosophy which enabled him, not only to affirm, but also to predict, long beforehand, the results of experiment, when he announced the *combustibility of the diamond*, and the *composition of water*. Since that period, philosophers have become more and more cautious, in deducing their consequences, and in forming their theories; and the aspect of the sciences has changed in proportion as they have become more completely susceptible of calculation.

Such, in my opinion, is the idea which we ought to form to ourselves, of the influence of the spirit of philosophy on every department of the study of nature.

PROGRESS OF THE NATURAL AND EXPERIMENTAL SCIENCES,
MOST USEFUL TO THE KNOWLEDGE OF MAN, DURING
THE COURSE OF THE THIRD EPOCH.

ALL the sciences so successfully cultivated in the course of this era, have participated more and more of the impression of this spirit. The methods of the study and classification of substances had already begun to smooth the field of *natural history*, when *Tournefort* published his system, to which we owe the success of *Linnaeus*, who has affixed his seal to every department of this beautiful science, and of whom so many celebrated naturalists boast as their common preceptor. The *Jussiens*, for their part, had prepared themselves, during a long period, to explore a new route in the same career; and the physician finds the virtues, the principles, and the organic characters of plants, united in a
truth

truly admirable manner, in the analogies, a table of which they have delineated to us.

The natural philosopher possessing in succession the thermometer, the first idea of which is due to *Sanctorius*,* the barometer, the pendulum, the air-pump, optical instruments, and all the machines of experimental physics, weighed the air, examined its physical properties, studied the phenomena of a vacuum, those of the percussion and of the fall of bodies, received from Newton the knowledge of light, of the colours which compose it, of the different relations of its refraction, and in the system of attraction, had a transient view of the universality of that powerful law by which bodies act upon each other in the inverse ratio of the square of their respective distances, and from which almost all the motions of the universe proceed; a new and powerful agent universally diffused, and almost universally unknown, obeyed the voice of *Dufay*, of *Nollet*, and of *Franklin*, and voluntarily rushed forth from all the bodies of nature. Air and water combined, presented to the attentive observer's eye, the phenomena of alternate solution and precipitation, which explained a multiplicity of atmospheric meteors; and the basis of the hygrometrical theory, established by *Leroy*, received fresh accessions of

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improvement

* *Sanctorius* demonstrated his thermometer to his pupils, in his lectures, thirteen years before the description of it was published in his commentaries on *Avicenna*, (question sixth), printed in 1625; consequently six years before *Dybbel* had explained his own in 1618. He had also suggested the idea of a computing pendulum, before that instrument had been invented by *Galileo*, and applied to clock-making by *Huyghens*, (question fifty six). *Sanctorius* had intended his thermometer to measure the temperature of patients in fever, and in the different conditions in which the natural heat appeared changed.

improvement and utility in the hands of *Deluc* and of *Saussure*. In short, man immersed into the atmosphere was no longer surrounded with a world of enigmas, and ceased to contemplate with a blind astonishment the meteors with which he was encompassed.

Medicine, while she recollects the errors and deceitful promises of the pupils of *Paracelsus*, will not forget that to the *Vanhelmonts*, already endowed with a better genius, succeeded in chemistry, men justly celebrated for their knowledge of the art of healing. Whatever may have been the fate of the theory founded on the imaginary principle of phlogiston, it will preserve with veneration the names of *Beccher*, of *Stahl*, of *Boerhaave*, and of *Hoffman*. It will recal to our remembrance that we are chiefly indebted to *Stahl*, for having banished from the science the reveries of alchymy, and the follies of the universal remedy; and in the works of the two latter, it will discover that if such men have not derived from the chemical art other resources for that of healing diseases, and preserving the life of man, it was because in all probability an immutable law, reserves the most powerful efforts of the human mind for certain eras; and because, for the improvement of individuals, as well as for the developement of their physical and moral powers, there are ages and periods in which those powers must remain stationary. Theories of fermentation, still imperfect indeed, were nevertheless proposed, and were ready to receive a greater degree of perfection from the knowledge of the gaseous fluids. The theory of affinity, explained by *Geoffroy*, threw new light on the changes and transformations which take place in chemistry, and was afterwards to furnish *Scheele* and *Bergman* with powerful instruments of analysis. *Venel*, in the midst of this (last) century, and *Black* after him, recognised the
nature

nature of the principle which characterizes the acidulous mineral waters, and paved the road for the discoveries of the present day. *Macbride* and *Pringle* applied the same principle, which is evolved during effervescence and fermentation, to medical use, and detected its antiseptic property. *Beccari* analysed or separated the two principles which compose the farina of wheat; and *Rouelle* discovered, in almost all vegetables, that glutinous matter, whose striking analogy with animal substances he had already announced. *Cartheuser* excited the distrust of chemists with respect to the nature of the products of analysis by fire, substituted in its place an analysis which is accomplished with greater accuracy, by means of water and alcohol, and applied it with some success to the knowledge of medicinal substances. Thus chemistry began to show itself capable of establishing, upon a more solid foundation, the hope of furnishing new light to the knowledge of man, and had already afforded the most efficacious assistance to medicine.

The study of anatomy no longer confined its range to a barren contemplation of lifeless organs. The circulation discovered by *Harvey*, and the course of the lacteal veins observed by *Afellius*, established in the midst of this inert mass a principle of motion, and canals of reparation. The lectures of *Rudbeck*, and of *Bartholine*, brought to view different parts of the lymphatic system, which, at a much latter period, were to be formed into a curious and vast whole, by the researches of *Hewson*, of *Hunter*, of *Sheldon*, and of *Mascagni*. The art of injecting multiplied *ad infinitum* the visible branches of the vascular system; and *Ruyfch* excited a doubt, whether any other substance but vessels entered into the structure of the body. *Leuwenhoeck*, calling the power of the microscope to the assistance of ana-

tomy, discovered a world, where it had been believed that the organization of living beings terminated. *Malpighi, Duverney, Winslow, Ferrein, Cowper, Albinus, Valsalva, Morgagni, &c.* explained with greater precision the anatomy of the organs of sense, of the viscera, of the muscular system, and the different organical disorders, which induce, follow, or accompany different diseases. *Willis* and *Vieussens* had, before their time, successfully begun an exposition of the nervous system, and of the anatomy of the brain; our acquaintance with which organs, has, in the present age, been so greatly extended by the labours of *Meckel*, of *Walter*, of *Scarpa*, and of *Vicq-d'azyr*.

To these efforts, to advance the science of the anatomy of the human body, were added the knowledge borrowed from comparative anatomy. *Perrault, Malpighi, De Graaf, Grew*, and *Swammerdam*, opened a career, in which, notwithstanding the excellent works of *Daubenton* on quadrupeds, and *Hunter's* researches, a complete performance is still a desideratum. *Vicq-d'azyr* taught us to conceive the possibility and the advantages of such a performance; and we now observe the execution of this useful project advancing, under the happiest auspices, by the anatomical researches of our colleague *Cuvier*, already multiplied to so great an extent. Thus does the bond of connection between anatomy, physiology, and the study of organized bodies, become daily stronger and closer. It is by the aid of this union that the principal functions of the body have been examined with a degree of success, which, perhaps, at a future period, will afford medicine, and the doctrine of hygiene, just cause of self-congratulation.

The phenomena of generation, and those of the development of the fœtus, which had first been investigated in birds and quadrupeds by *Fabricius* and *Harvey*, were afterwards
illustrated

illustrated in the chick by *Haller*, and since by *Manduyt* and *Vicq-d'azyr*; whilst the celebrated *Hunter* traced the progress of the fœtus in man, almost from the moment of conception to its complete evolution. *Vaillant*, at the beginning of this (last) century, while engaged in developing the mechanism of generation in plants, removed the boundary which appeared to separate the vegetable from the animal kingdom, and thus fixed the basis of the sexual system of *Linneus*. *Perspiration*, whose phenomena had been so admirably illustrated by *Sanctorius* in Italy, was brought to the test of the same experiments by *Dodart* in Paris, by *Keil* in England, by *Gorter* in Holland, by *Robinson* and *Rye* in Ireland, by *Linings* in Carolina: and *Gorter*, especially, bestowed on this doctrine a new degree of precision; whilst the celebrated *Hales*, by instituting a comparison with respect to this function, common to all beings who live in air, between vegetables and animals, multiplied the relations which unite the two organized kingdoms. *Digestion*, for a long period, explained upon mechanical principles, or upon different hypothesis of fermentation, at that period equally remote from being properly understood with digestion itself, was ultimately subjected to accurate experiments by *Reaumur*, whose trials have since been repeated with equal success; and this function placed in a new point of view by the *Abbe Spallanzani*.

But one of the most illustrious epochs in physiology, one of those which have had the most decided influence on the science of medicine, is that when *Haller*, penetrating into the sanctuary of nature, demanded from her the secret concerning the sources of action and of sensation, and unfolded, by a long series of ingenious experiments, his theory of *irritability*, and of the relations between the nervous and muscular systems. Whence happened it, that the phenomena,

nomens, which now so generally occupy the attention of physiologists, did not then present themselves to the careful eye of such an observer? Be this as it may, from that moment, all the theories concerning the animal functions assumed a new direction. Finally, *ossification* and its progress, first observed by *Dubamel* and *Herissant*, have offered to physiologists a very interesting spectacle; whilst the practical observations of *David*, on *spontaneous necrosis*, and the ingenious experiments of *Troja*, on *artificial necrosis*, and the *reproduction of bones*, have developed this interesting department of the mystery of nutrition, and placed the observer in the footsteps of nature, in one of her most curious operations. Thus has observation gradually occupied the province of conjectures; human and comparative physiology ceased to be a field, opened to the excursions of imagination alone; and theories, experiencing a more solid support, soon assumed the shape which they should always possess, and appeared to be the result of facts compared together, and of inferences deduced from the observation of their relations.

In the midst of all these labours, *medicine*, leaning upon the traditions of past ages, proceeded with a timid step in the path of experience. Continually occupied in comparing the phenomena which observation affords to her view, with what the ancients have advanced upon the subject; and discovering perhaps too much anxiety to find in the works of the ancients, what she ought to perceive in the result of observation; contemplating with a curious and eager eye, and taking an active part in the investigations of the natural and experimental sciences, and nevertheless receiving the light imparted by them with the distrust and reserve natural to those who have been long deceived; shaking off the yoke of prejudices with reluctance, but
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once extricated from their trammels, abandoning them for ever; not having the command of the time which nature has reckoned, and which ought to be seized, because it is on the wing; and yet responsible for the result of her trials, she advanced slowly, and resembled, in her disquietudes, a steward who is accountable for a precious deposit intrusted to his care. Powerful instruments, unknown to the ancients, *mercury* and *cinchona*, &c. have notwithstanding placed her in a condition to contend with advantage against nature herself, in the cure of some desperate diseases. She can also assist nature in her salutary tendencies, by the most efficacious means, among which must assuredly be reckoned *electricity*: and her movement, bolder and more certain in the treatment of external maladies, has enabled her to make great additions to the knowledge and success of former times. But if we consider medicine in her *tout ensemble*, and in her connection with the philosophy of the art, we observe her efforts to arrive at perfection, characterized by the different kinds of trials.

1^{mo}, The *critical doctrine* of the ancients in acute diseases, built upon the theory of *concoction*, and of obedience to the motions of nature, received a greater degree of precision, by more extensive observation concerning crises, and by the more minute, if not more philosophical, study of their prognostic symptoms.

2^{do}, The progress of *practical observers*, gradually liberated from the power of prejudices, and subjecting their system to the test of experience, has been directed by *Sydenham*, *Mead*, *Freind*, *Torti*, *Hunam*, *de Haen*, and *Stoll*.

3^{tie}, *Modern theories*, attempting to connect all the phenomena with a small number of principles, all incomplete when considered as a whole, but almost all of them true in some of their parts, useful if they are regarded as the means

means of simplifying study, and of connecting a number of facts, by enabling the student to seize upon their most prominent relations; hurtful or pernicious, if we exclusively view them as a faithful representation of nature, and as the law of the art, but generally disappearing at the patient's bed-side; exhibit to us in turn the success of the schools of *Stahl*, of *Boerhaave*, of *Hoffman*, of *Cullen*, and, in the present day, of *Brown*.

Lastly, The methodical spirit, and that important art of describing with precision, and of classifying with success, of throwing individuals into groupes, and of arranging species together into orders, of delineating the great outlines of their general characters, and of blending with precision their shades of difference; a valuable art, sprung up in the bosom of the natural sciences, and transmitted through them to medicine, has given birth to *nosological methods*; among which must pre-eminently be distinguished the nosologies of *Sauvages*, of *Vogel*, of *Cullen*, and the pyretology of *Selle*. Nor ought we at the same time to forget, that the illustrious *Linnaeus* occupied himself in this field of labour, to which physicians are indebted, for at least a degree of precision, till this period, unknown in medical language.

If we subjoin to all these improvements, that degree of perfection to which the moral and intellectual knowledge of man so intimately allied to the study of his physical faculties, the improvement which the analysis of his sensations and ideas, that of the understanding and of the passions, so accurately delineated, before this epoch, by *Montaigne* and by *Bacon*, have received from the works of *Descartes*, of *Malebranche*, of *Nicol*, and of the philosophers of *Port-royal*, of *Locke*, of *Leibnitz*, of *Roussseau*, of *Candillac*, and of the first editors of the *Encyclopedie*; we shall have a
sketch

Sketch of all the elements subservient to the physical knowledge of man, to the art of preserving his health, and of advancing the perfection of his nature, which the sciences enlightened by the spirit of philosophy, and, above all, by the experimental philosophy, have furnished.

PROGRESS OF *HYGIENE* IN THE COURSE OF THE THIRD
EPOCH.

IN this epoch, *hygiène* was far from having reaped all the advantages which it might have derived from so many sources of assistance. I speak here of *hygiène*, concocted and reduced into theory and precepts by men who seriously applied themselves to the task. Although I have already given a favourable representation of many writers, and others are still entitled to the same justice, it may, in general, be observed, that this branch occupied a very inconsiderable place in the plans of study and of instruction. I consider it, however, as the basis of the medical knowledge of man, and, in many respects, as the key to the art of healing. This indifference, as I have asserted in another place,* appears to me to originate from two causes: “1^{mo}, From the circumstance that men, little attentive to whatever affects them when in the full enjoyment of their health, are infinitely more impatient to obtain deliverance from the sufferings which annoy them; physicians on this account have resolved, in preference, to devote their attention to that department of their art, from which they derive a greater proportion of praise and of confidence, and which is more conducive to their personal interest, without considering that success, in this branch of the profession,

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* Fourcroy's Journal, entitled *Medicine éclairée*, &c. tom. iv, p. 226.

can acquire true solidity, only from an intimate knowledge of the circumstances, connected with a state of health. 2^{do}, Another cause of this indifference to the study of *hygiène* is, that modern governments, much less occupied than the ancient governments with the task of endowing men with strong and vigorous constitutions, have much more generally depended on the art of profiting by their vices and defects, and of calculating their produce, than on the art of improving their physical and moral education : from these mercenary views, they have generally been induced to abandon a system which constituted the glory and the success of the ancient states, and which gave true philosophers great influence over the perfection and happiness of nations."

Down to the end of the seventeenth century, all the works which treat of *hygiène* are limited—1st, to treatises concerning the doctrine of perspiration, which was a very favourite topic of investigation with men possessed of real ability: 2^d, to commentaries on that futile production, known by the name of *Schola Salernitana*, and which *Rene Moreau* adorned with illustrations worthy of another text: 3^d, to compilations more or less useful from the works of the ancients, such, for instance, is the work of *Gonthier of Roanne*, (intituled *Exercitationes hygiasticæ*), in which we find some passages worthy of remark, relative to the practices of his time; and the treatise of *Nonnius*, intituled *De re cibaria*. Towards the middle and the end of that century, and about the commencement of the eighteenth, the physical theory of atmospheric air began to be applied to useful purposes. *Mayow*, afterwards for so long a period forgotten, appears to have conjectured its true effects, in respiration and combustion. *Boyle*, and afterwards *Hales*, investigated the changes which deprived it of its respirability

ability, without being able to ascertain them. *Hales* and *Sutton* occupied themselves in improving the means of renovating it. *Arbutnot* published his treatises on air and aliment, and proposed to himself, in this manner, to subject to a new examination, all the branches of the *doctrine of health*.

Locke wrote upon education, and upbraided the mothers and teachers of his time, for the care they took to deprive their children and their pupils of the salutary impression of cold air, and for training them up in effeminacy, and in studied delicacy; of real detriment to their health, instead of strengthening and rendering them hardy, by a manly system of education, equally advantageous to their body and to their mind. *Ramazzini* devoted himself to inquiries concerning the health of artificers, and the diseases to which they are obnoxious. *Winslow* demonstrated the injurious effects of whalebone stays on the constitution of females and of children. But neither *Locke* nor *Winslow* contributed to reform the manners of their contemporaries. It was about the middle of this (last) century, that *Rousseau* finally subverted all the ancient opinions on these subjects. His lessons were repeated by a crowd of authors. During the same period, multiplied observations concerning the proper regimen in inoculation, and the treatment of small-pox, demonstrated that the influence of fresh and renovated air, far from being prejudicial in these eruptive diseases, was often of advantage in them, and even necessary; and that the regimen suited to inoculated patients, should not be exclusively regarded as a hot regimen. These facts completely changed the method of regimen, both with respect to medicine and *hygiene*, as well as the theory of the education of children; not without occasioning them to degenerate into many excesses and exaggerations.

Lastly, works worthy of the public esteem, and of serious consideration, have attached the name of *Tissot* to some branches of the doctrine of *hygiène*; in which he has aimed at preserving the health of the people, of young persons, and of some classes of citizens particularly exposed to diseases which result from different occupations in life. But these performances, as well as many others equally respectable, have not by any means introduced these changes into *hygiène*, that might be expected from the state of the physical sciences, down to the fourth epoch.

TRACES OF THIS PROGRESS IN THE PRINCIPAL WORKS
WHICH HAVE CONTRIBUTED TO IMPROVE THE DIFFER-
ENT BRANCHES OF *HYGIENE*.

To give a more accurate and useful account of the subject of which we treat, we proceed to give as ample an explanation as is possible in a rapid sketch of the different branches of preservative medicine; and, after a review of the works most distinguished either by their success or by their merit, to consider what advantages have accrued to each of these branches, from the state of the sciences during the epoch, the history of which we have detailed.

GENERAL TREATISES.

If we consider the general treatises written on *hygiène* during this epoch, we find them included in the ancient division, for the first idea of which we are indebted to Galen. This division embraces the whole. These treatises are to be found in the complete systems of medicine of *Sennertus* and of *Riverius*, &c. and in the collection of
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works in which *Yancker* has developed the medical history of his master *Stahl*. I have already mentioned the work intitled *Exercitationes hygiasticae* of *Gonthier*, and the commentaries of *Rene Moreau* on the *Schola Salernitana*. *George Cheyne* often differed from all his contemporaries in respect to the opinions and practices adopted in his treatise, intitled *De infirmorum valetudine tuenda*. In that tract he preaches up the doctrine of an almost exclusive vegetable diet. It appears to have been his intention in this performance to revive the tenets of *Pythagoras* and of *Porphyry*; and, like the ancients, he recommends the practice of dietetic vomitings. In other respects, this author is distinguished by a great share of genius and of knowledge. Finally, one of the most respectful and philosophically written works, although very concise, is that which constitutes the commentaries of *Lorry* on the statics of *Sanctorius*.

PARTICULAR TREATISES.

PROGRESS OF HYGIENE IN THE PHYSICAL KNOWLEDGE OF MAN, OF HIS RELATIONS TO CLIMATE, OF THE VARIETIES OF HIS PHYSICAL CONSTITUTION, OR OF HIS TEMPERAMENTS.

ONE of the principal foundations of the physical study of man is the influence of climates on his constitution. This study is founded upon the aggregate of geological and physical knowledge, and, above all, upon the theory of the atmosphere; upon the natural sciences, and upon the investigation of the different animal, vegetable, and mineral productions, both in their connection with the climate, and as they indicate the nature of the soil, and of its influence on the creatures by whom it is inhabited. Lastly, it is also founded upon the mathematical means of

determining the scale of population, and of appreciating the causes which make its proportions to vary, according to the relation of these proportions, with the circumstances that affect its salubrity, with political events, with epidemics, &c. Thus all the physical and natural sciences, contribute to the improvement of this branch, which also requires an acquaintance with travels, the multiplicity of which, during this epoch, has furnished ample subject for reflection to the physician, who wishes to ascertain with some precision the strength of those bonds that connect the constitution of man with the country which he inhabits. *Zimmerman* and *Bergman* have given us strictures on physical geography in general; and the former * has described, in a very ingenious manner, the relations of men and of animals with the climates and regions of the earth. *Propper Alpinus*,† about the end of the sixteenth and beginning of the seventeenth centuries, wrote his observations on the Egyptians, and on the state of medicine in Egypt; and his treatises contain a topography of that country, delineated by the hand of a master. *Pison*, *Marcgraff*, and *Bontius*,‡ have described, with almost an equal degree of ability, the topography of Brazil, and of some parts of South America. Certain treatises, and some particular memoirs, delineate the history of different other regions. But few works present a more accurate table, or a more perfect model of this species of writing than the memoir upon the topography of *Marseilles*,

* *Specimen Zoologiae geographicae*. Zimmerman.

† *Historia nat. Egypt. et de medicina Egyptiorum*.

‡ *Guliel. Pisonis de India utriusque re naturale et medicina*; to which is annexed the natural history of Chili, by *Marcgraff*, and the treatise de medicina Indiarum of *Bontius*.

Marseilles, by Dr. *Raymond*, inserted in the second volume of the memoirs of the Society of Medicine. This society have undertaken to draw up a description of France, considered under the view of the medical knowledge of climates; and a great number of materials have been already collected for the execution of this design.

The knowledge of the varieties which the physical constitution of man presents, and of the temperaments in which it results, is one of the most important of all the subjects, the study of which contributes to the full illustration of the doctrine of health. It is very astonishing, that with all the assistance derived from the present advanced state of anatomy, our progress in this department of knowledge should have been so inconsiderable. This interesting subject of inquiry has been almost exclusively intrusted to the habit of observation. Scarcely has any one attempted to reduce experience to theory. We repeat what the ancients have left us on this subject, without giving ourselves the trouble of appreciating its import. Their primitive qualities reduced to the four principal temperaments, whose denominations are derived from real or supposed humours, still constitute the amount of what the great *Boerhaave* has presented to the public on this subject, in his *Institutions of Medicine*. This doctrine, which has now become obsolete, and which no person has lately been at the trouble to revive, has yet received a great modification, more in the minds than in the works of physicians, from the knowledge of irritability, and systems of medicine built upon that knowledge. We find, in the preliminary observations to the second volume of *Lorry's* treatise on Aliment,* a state-

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* Page 1 to 89.

ment of the authors' ideas upon the physical sources of the differences among men, in which he suggests some very ingenious considerations; but as they are only subordinate to his principal view, they are not so developed, or so precise, as a treatise on temperaments would require.

With regard to works especially written on this subject, one might almost affirm, that the best which we are in possession of at this day, is still the treatise written in the beginning of the seventeenth century, by *Livinus Lemnius*, intitled *De complexionibus*, where the theoretical divisions of temperaments, although founded upon the ancient hypotheses, are brought together by a method sufficiently remote from observation and the practical study of man. The pen drops from the hand while we contemplate such an exposition of such a subject! The respective relations of all the systems of the parts which enter into the composition of man, of the lymphatic system to the sanguiferous system, of the nervous system to the muscular system, of the cellular system to the vascular system, of sensibility to strength, the mutual relations of the viscera to one another, and the respective proportions of the different parts of the general systems, considered in the different regions in which they are distributed; of the cerebral region to the pulmonary and abdominal regions; of the trunk to the extremities; of the centres to the surfaces; all these relations, so true, so positive, so important, so susceptible of being easily verified, both from the sensible differences among men, and by the phenomena which accompany the successive periods of life: Were these then considerations so frivolous, so useless, or so superficial, as not to reward the labour of collecting together all the scattered ideas respecting them into a complete work upon
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the subject? But this is not the place to extend this discussion.

PROGRESS OF *HYGIENE* IN THE STUDY OF THOSE THINGS
WHICH CONCERN HEALTH.

AFTER these preliminary remarks, necessary to establish the knowledge of man, and of men, or of the *subject of hygiene*, the principal object of our reflections is the influences to which he is exposed. Physicians have always arranged this study under the ancient division, known by the title of the *sex non-naturals*. I have already ascertained the import of this strange term; and it appears to me that the phrase, *matter of hygiene*, might with propriety be substituted in its place, since those things, and the proportion in which their use is limited, are in reality the instruments and the means of which we avail ourselves for the purpose of obtaining the preservation of health.

The knowledge of atmospheric air, and of its influence upon man, has more especially received great accessions from the progress of physics throughout the whole extent of this epoch. The *thermometer*, although its sensible phenomena do not indicate any accurate proportion of the quantities of caloric, correspondent to its degrees; the *barometer*, pointing out the changes in the weight of the atmospherical column, and agreeing, although imperfectly, with the different conditions of the water dissolved in the air; the *hygrometer*, susceptible without doubt of a new degree of improvement; but already accordant with meteors intimately connected with health; the proper means of ascertaining the state of *atmospherical electricity*, to which fresh accessions of knowledge will undoubtedly add a new degree of precision, are important instruments which me-

dical meteorology and *hygiène* have advantageously employed. The experiments of *Dubamel* and of *Tillet*, those of *Fordyce*, of *Banks*, and of *Blagden*, on the degree of heat to which man can be exposed consistent with safety; the knowledge acquired by these experiments of the property by which the body in all temperatures maintains its peculiar degree of heat, have overturned the prejudices acquiesced in on the authority of the great *Boerhaave*.

Arbuthnot's treatise on air, notwithstanding, still remained the most complete of all those which, in course of this epoch, had been particularly appropriated to the investigation of *hygiène*; and yet electricity was not known at the time in which *Arbuthnot* wrote. To this treatise we are therefore obliged to subjoin those of the natural philosophers who wrote on electricity, *hygrometry*, and meteorology. We must add to these the perusal of the writings of the physicians who have treated of epidemic diseases, and who have attended to their agreement with the variations of the atmosphere: such are *Sydenham*, *Huxham*, *Lind*, *Hillary*, and, in our own country, a great number of excellent observers; to whom may now be added, all the works upon epidemical constitutions of the atmosphere, brought forward by the establishment of the medical society, or collected in their memoirs. The works published on the danger of burying in cities, on the mephitism of privies; those to which the vast exhumations, attempted, proposed, or executed, at different times, have given rise, and the most important of which are the composition of *Kicq-d'Azyr* and of *Thourret*, ought to occupy here a place more conspicuous, in proportion as they exhibit striking practical proofs, added to those adduced of the theory, and restore to their due degree of importance, propositions sometimes established upon a basis whose solidity was not sufficiently appreciated.

appreciated. But these works bear the impression of the fourth epoch, to which they belong.

To the reflections of *Locke*, to the observation of *Winslow* and of *Buffon*; to the impressive remonstrances of *Rousseau*, upon the clothing of infants, repeated in a thousand shapes by physicians and by authors, who have written on education, scarcely any thing can be added. A treatise published on drefs, by citizen *Alphonso le Roy*, although it contains some ingenious remarks, is assuredly far from conveying a sufficient degree of information in the present state of things. And even long before the era in which we live, a great many hints, applicable to this subject, could have facilitated its developement. In truth, whether we consider garments as having an influence on muscular powers, determining either their direction, or the relations of their fixed to their movable attachments, and thus entering into a combination with the theory of the gymnastic art; or whether we regard them as defending the body from the influence of the atmosphere, the knowledge acquired concerning animal mechanism, and the views already suggested by *Franklin*, and several other natural philosophers, concerning the conducting properties of bodies for heat, might have afforded room for a much greater number of useful reflections upon their materials and their form. In the present day, this object might be still more satisfactorily accomplished.

If we except the descriptions which either physicians or naturalists and travellers have given us of the public baths, frequent in Russia, in Finland, in the countries inhabited by the Turks, and in the East Indies, the moderns have made no addition to the knowledge left us by the ancients concerning *baths*; and almost all our modern writers have treated of them more in their relation to medicine than in

their connection with the *doctrine of beauty*. We find, however, in *Lorry's* commentaries on *Sanctarius*, the elements of many useful considerations on this subject, worthy of being placed in new points of view in the present day. *Cosmetics*, and *all the applications made to the skin*, whether for preserving cleanliness, or for heightening the splendour of its beauty, are in the very same predicament. And a work in which the author embellished his precepts with all the graces of an ingenious fiction, under the name of *Abdeker*, cannot now be regarded as answering completely the object of *hygiene*.

The subject of aliment has been treated more fully and more successfully than any other in the course of this epoch. In this respect, however, the era under review must be divided into two periods. The first terminates with *Arbuthnot*; and the work of that physician on aliment may be regarded as its completion. During this period, certain authors published very voluminous performances, more replete with true erudition than with true physics. Such are the treatises of *Pisanelli*, of *Nonnius*, and of *Melchior Sebizi*, on aliments. They are very valuable, since they bring together into one point of view, the labours of the ancients, and enable us thoroughly to comprehend their doctrine on the subject in question. Others, among which may be reckoned *Arbuthnot's* treatise, displaying a less prolix erudition, offer an application, too frequently illusory indeed, of the chemical knowledge of the times, and more especially of analysis by fire; but we find in them a more philosophical order, and practical observations, well arranged, and which indicate a correct understanding and a sound judgment.

In the second period, chemistry, unfolding the means of a more simple analysis, has in a greater degree facilitated the examination

examination of animal and vegetable substances, and the comparison of their characteristic qualities. The analysis of the farina of wheat, by simple washing in cold water, performed in Italy by *Beccari*, and in Germany by *Kessel-Meyer*; its separation into a *starchy matter* and a *glutinous substance*, awakened the attention of all chemists and physicians. The labours of *Rouelle* added to these first views of the subject, all the knowledge that could be acquired from the use of the instruments, of which, at that period, he had it in his power to avail himself. The separate consideration of the glutinous substance, and its insolubility in the greatest number of menstrua, excited many doubts with regard to the salubrity of the farina of wheat, employed as nourishment for infants, and afforded a handle for many exaggerations, which I have endeavoured to estimate under the article ALIMENT. The analysis, although still imperfect of milk, of albumen, of the yolk of an egg, and of the blood, have already thrown great light on the essential characters of the nutritious matter. More profound investigation of the products of vinous fermentation has conduced to the knowledge of fermented liquors, and enabled us to form more accurate ideas of the effects which result from their use.

All the most accurate knowledge which at that period could be obtained, with regard to the peculiar nature of the alimentary substance, to the varieties of aliment in which it is contained; with respect to the nature of mucous bodies, whether found in mucilages, in saccharine substances, in fermentible juices, or in gelatinous substances, both animal and vegetable, has been condensed with equal sagacity and erudition, by the celebrated *Lorry*, in his treatise *on aliments*; which I consider as the best summary of all the information acquired on this subject, at the
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the end of this epoch. I have given a very comprehensive view of this treatise in the article devoted to this object. *Cullen*, in the beginning of his *Materia Medica*, has also given excellent observations on the different parts of the nutritious matter.

Lastly, it would be highly unjust to omit quoting here among the number of men whose works have chiefly contributed to the improvement of this branch of the art, the respectable name of *Parmentier*, whose labours, constantly directed to public utility, have discovered the nature of many nutritive substances, particularly of farinaceous substances, and vindicated from unmerited contempt the *potatoe*, one of the most abundant and most useful species of aliment. This worthy citizen has acquired a stronger title to our gratitude, inasmuch as we are perhaps at this day indebted to him for our escape from all the horrors of a terrible famine, with which we were threatened by the wicked machinations of men, notwithstanding of the fertility of our soil, and of the multiplied gifts of nature.

Botany, by the accuracy of its descriptions, has taught us to distinguish the useful aliment and agreeable seasoning, from the fatal poison, in a class of aliment, at present in too great request; and the observations of *Paulet* and of *Bulliard* on mushrooms and poisonous plants, ought not to be passed over in this place without praise and acknowledgment. Let us be equally attentive to bestow a share of the glory due to these learned men, upon those who have enlightened the citizens with respect to the danger by which they are too frequently threatened, and at whose instigation laws have been promulgated, prohibiting the use of vessels and utensils of copper and lead in those cases in which these metals can be attacked by solid food and liquids, and can convey into our bodies the germs of destruction,

struction, in the deceitful garb of salubrious nourishment, and lurking under the charms of an agreeable liquor. *Navier's* essays especially merit a particular attention on the part of chemical physicians, by multiplying the means of detecting and destroying this perfidious enemy.

Gorter, by determining with still greater accuracy than *Sanctorius* the moment of most copious perspiration which follows sleep, by proving, that till the very moment of our wakening, this, like the other evacuations, is almost entirely impeded; that it is in the moments immediately subsequent to our awaking from sleep, that this, as well as all the other excretions, burst forth with greater impetuosity and profusion, prepared by rest, and excited by all the moving powers, which at this period resume a new degree of activity; by thus assisting us in incorporating together the theory of aliments, of evacuations, of sleep, of repose, and of exercises, *Gorter* has furnished the doctrine of *hygiène* with a basis, upon which important considerations, subservient to the preservation of man, can rest with greater solidity.

The more accurate analysis of the bile, made by modern chemists; the different states of the phosphoric acid in urine, ascertained by them with a greater degree of precision than by their predecessors; the universality of this acid recognised in the animal economy, in the base of bones, and even in the gastric juices, have placed the agents and products of digestion in a new point of view, have authorized us to take for granted the bond of connection between the different conditions of the substances evacuated, with the order and derangement of this function, as well as with the order and derangement of ossification, and have paved the way to new and important views of these processes, and to the useful labours of *Bertholet*, of *Vauquelin*,
and

and of *Fourcroy*, on gouty diseases, on the differences between the physiology of man, and of the lower animals, and on the characteristic features of those changes which take place in the successive periods of life.

Of the knowledge of muscular motion and of animal mechanism, investigated afresh by certain anatomists, subjected to calculation by the celebrated *Borelli*, in his treatise *De motu animalium*, these authors could not form an accurate estimate, because, although they have given an exact measurement of the instrument, they could not possibly subject the power itself to precise calculation. Nevertheless, if they have not been able to discover the total amount of the force and of the variable action which it exercises, they have at least ascertained with precision the different elements of which it consists; and the useful views which they have proposed, undeservedly overlooked since their time, ought not to be entirely lost on their successors. The study of the gymnastic art, now for a long period abandoned; that of its influence upon the development of the corporeal organs, and upon the art of preventing distortion, more by natural than by artificial means, which ought to be reserved for the cure of diseases, deserves at length to receive more efficacious assistance from animal physics, too much neglected on the frivolous pretext of their insufficiency. Physicians have too frequently repeated, and in the present day still too frequently repeat, that the calculation of physics, and the products of chemistry, are always too remote from the results of nature. The works of nature is a problem composed of what is known and constant, taken in conjunction with what is unknown and subject to change. Shall they always thus continue to persuade us, either that the investigation of this problem must be abandoned; or that, in order to enable us to estimate

state what is unknown, and to fix the study of what is variable, we ought to neglect the constant and calculable elements of the problem in question?

Lastly, the influence which the moral part of man possesses over his physical nature; the power which our senses, our passions, and the intellectual part of our constitution, exercise over the functions which preserve our existence, whatever assistance physicians may have received from philosophers on these subjects, have been explained by the former in a very vague manner. The phenomena of the comparative development of our physical, moral, and intellectual faculties, of their derangement, and of the relations between them, demonstrated by the accidents of health and disease, have, however, placed in the hands of physicians more multifarious means of accomplishing this delicate analysis. They ought consequently to have been able, with greater ability than other inquirers, to follow nature in the interesting details of this kind of observations; and they ought to have put themselves in a condition of furnishing more useful lessons, and more accurate considerations to philosophers.

PROGRESS OF HYGIENE IN THE THEORY OF REGIMEN.

THE idea of the improvement of regimen necessarily results from the improved knowledge of man, and from the knowledge of the things to whose influence he is exposed. The former is the conclusion of a problem, of which the latter are the *data*. We have presented to the reader a sketch of the history of public *hygiène*: with regard to private *hygiène*, and to the general details of regimen, they are particularly to be found in general treatises, and in those which concern aliments. The second volume of *Lorry's* work,

work, *Arbuthnot's* performance before his time; and at a more ancient period, *Lemmius's* excellent commentary on the first book of Celsus, intitled *De tuenda valetudine*; the unfortunate *Bennet's* investigations concerning the regimen best adapted to the preservation of such as are threatened with pulmonary affections, collected together in his treatise called *Theatrum tabidarum*, comprehend the best observations which can be compiled on the theory of regimen, whether calculated for those who enjoy a permanent state of health, or for those whose existence is feeble and precarious.

I have already mentioned what regards the education and regimen of infants, and the revolution which on this subject has taken place amongst us, established upon observations, for a long period forgotten by the timidity of mothers and of teachers, but essentially true and useful. The consequences deduced from these observations, however, sometimes pushed too far, compel us to repeat to those men whose judgment is overpowered by improper ideas; who are acquainted with a few principles only, without any inclination to perceive their shades of difference; who contemplate all men with the same eye, all circumstances under the same point of view; who appreciate the powers of nature by their own preconceived opinions rather than their own opinions by the laws of nature; compel us, I say, to repeat to them, that every thing beyond the boundaries of truth is error; that every general inference deduced from one fact, or from many facts, and applied to every case without distinction, necessarily exceeds these boundaries; that the success of a rash experiment finely demonstrates the extent of nature's resources, but does not authorize them to expose themselves to the charge of having surpassed her limits. In short, to bring to their recollection

lection the observation of the excellent *Horace*, an observation so often verified among all mankind, *Dum vitant stulti vitia, in contraria currunt*. One of the works which has met with the most favourable reception amongst us, since the time of *Rousseau*, is the small treatise of *M. de Fourcroy*, counsellor to the bailliwick of Clermont, intitled *Children educated according to the order of nature*. It is now in the hand of every mother; and although it had only this merit, it would be worthy of great attention. The precepts which it lays down are just and useful; but their import especially requires to be appreciated with discernment, and to be understood with the restrictions, which circumstances, the strength or the weakness, and the susceptibility of individuals, render indispensably necessary.

As to what remains, on this subject, if the writings of philosophers little conversant in medical science, have, on this account, the disadvantage of not being applicable in every case, we ought to find this error rectified in the works of physicians on the same subject. The knowledge of the diseases of children, the habit of perceiving their approach, of preventing and of treating them, gives to their precepts a greater variety, and a more extensive application. Without mentioning the works exclusively confined to the treatment of diseases, there are others which treat of physical education in general; and of these, although the epochs at which they were published stamp upon them different impressions according to the opinions prevalent at the time, there have at different periods been distinguished in our own country, those of *Brouzet*, of *Raustin*, of *Desfarts*, and of little treatise of citizen *Sauvot*, remarkable for its brevity, its simplicity and perspicuity. I do not consider it necessary, upon a subject on which so little

little new has been advanced, to record the numerous works of foreigners.

We are far from being in possession of so many works on the health of old men, as on that of children. Man, however feeble and tottering at the two extremities of life, has equal need of support, and the aged besides require consolation. This subject engaged Galen's attention; and there exists a treatise, of the commencement of the seventeenth century, intitled *Anselmi...Gerocoma*. This example has not had many imitators. It has been reserved for our age, to liquidate the debt incurred by the preceding, and to fill up with advantage this breach in our art.

I have ranked in the number of the works which have contributed to the improvement of *hygiène*, *Ramazzini's* treatises on the diseases of artists. In fact, it is truly in the study of these diseases, that the physician ought to seek for the lessons of experience, as to what is conducive to the preservation of so many useful men, to whom society owes its enjoyments. So important a consideration would it be, to remove them from those influences, often dangerous and sometimes fatal, by which they are surrounded; and yet a *hygiène* of artists is still a desideratum in the medical art. The Society of Medicine intended to attempt a work of this kind, which ought to constitute an essential part of the collection of arts and crafts published by the Academy of Sciences. Citizen *Pajot des Charniers* has already enriched it with valuable observations, made in the midst of workhouses. But the zeal and the knowledge of this respectable observer were unaccompanied with that acquaintance with medicine which was requisite to give his remarks all the utility and all the extent of which they are susceptible.

I shall

I shall not repeat here what has already been advanced concerning physicians who have written on the health of the poor, of the people, of men of letters, of men of fashion, of soldiers, of sailors, of Europeans who travel to tropical climates, and of the inhabitants of our colonies. After the names of *Plenpius*, of *Portus*, and of *Ramusius*, which adorn the seventeenth century; our own (list) registers; with grateful acknowledgments, the names of *Pringle*, of *Lind*, of *Hillary*, of *Dubanel*, of *Poissannier*, *Desperret*, of the illustrious *Cook*, of the venerable *Tissot*, and of *Dazille*, already quoted, and worthy of having their names again repeated.

FOURTH EPOCH,

DISTINGUISHED BY THE DISCOVERY OF THE AERIFORM FLUIDS, AND BY THE RENOVATION OF THE CHEMICAL SCIENCES.

WITHOUT daring to flatter myself, that I have unfolded to an extent worthy of the subject, the history of that epoch, whose principal features have now been traced, I believe that I have given a pretty exact view of the changes which the art of preserving health has experienced during its continuation, and of the principal points to which its progress can be referred.

To the epoch which remains for us to examine, we ought to confine ourselves less to the works already published on *hygiène*, than to the means which we enjoy of attempting works of this nature with greater success. We are in possession of new and powerful sources of assistance; we can consequently cherish greater expectations.

Not only has it happened, that certain works of this kind have appeared but a few years ago; but many, from the nature of their subjects, and of the details into which their authors have entered, are essentially connected with those which were given to the public during the third epoch, do not differ from them by any essential character, and have been associated with them in the table of which we sketched the outline. The reports made to ministers by the Society of Medicine, concerning the regimen of sailors; and the works of the competitors for its prizes, on the subject of *military hygiene*, which will be published without any unnecessary delay, may be arranged in the same class; and in respect to general treatises, the work of citizen *Tourtelle* has lately been distinguished among ourselves; and in Germany, the works published at Jena, by Dr. *Christopher William Hufeland*: I satisfy myself with alluding to these in this place, in order to confine my range at present to the examination of those means of improvement pointed out to us by the progress which the physical and chemical sciences have made in the objects applicable to the knowledge of man, and to the preservation of his health.

AN HISTORICAL ABRIDGMENT OF THE DISCOVERIES
WHICH CONCERN MAN, WHICH CONTRIBUTE TO IM-
PROVE THE KNOWLEDGE OF HIS PHYSICAL CONSTITU-
TION, AND TO ASSIST US IN COMPREHENDING THE
PHENOMENA OF HIS ORGANIZATION.

The fourth epoch, which now occupies our attention, is chiefly remarkable for the discoveries of gaseous fluids, and of the composition of water, and by the theory of oxygen;

by

by the theory of caloric, and by the new means of appreciating and of calculating its quantities; by the improved theory of electricity, and by the accuracy of the instruments contrived to calculate its strength, or to detect its faintest appearances; by the discovery of the phenomena of galvanism; by the progress of comparative anatomy; in fine, by the precision given to the language of science, through the instrumentality of the new system of nomenclature.

An abler pen has traced, in the *Dictionary of Chemistry*, the history of the discovery of elastic fluids; of which the genius of *Vanhelmont* had obtained a glimpse at the beginning of the seventeenth century; whose phenomena in combustion and respiration had been briefly delineated by *Mayow* in 1669—a discovery which *Boyle* and *Hales* had afterwards improved by experiments, whose results they had not anticipated; which *Black* and *Venel* have also foreseen in their works, upon the principle which renders waters acidulous, and which yet escaped the perception of every eye, till *Priestley* gloriously opened the career, the palms of which were reserved for *Lavoisier*. *

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* The discovery of oxygen gas, that great source of animal life and of animal heat, of which the very ingenious Dr. Mayow, as appears from his essays on the Nitro-aerial and Fiery Spirit, had but a faint and conjectural glimpse, obscured by much unsatisfactory reasoning and inadmissible hypothesis, was certainly first exhibited by Dr. Priestley, and, about the same time, (unknown however to each other), by the immortal Mr. Scheele of Stockholm, although Hallé asserts in the text that the palm of this discovery is due to Lavoisier. Dr. Priestley obtained oxygen gas, or, as he termed it, dephlogisticated air in June or July 1774, from the oxyd of mercury, or, precipitat. *per se*, and from minium, or the red oxyd of lead. This fact he publicly mentioned, at Lavoisier's table at Paris, in the presence of that great and unfortunate philosopher and of his lady, who had no previous knowledge of this interesting fluid, and expressed their surprise at the phenomena related by Priestley, in the month

The action of atmospheric air on *combustible bodies*, its combinations with *carbon* and *hydrogen*, the formation of *acids*, and the phenomena of the composition and decomposition of *water*, are not destined for the sole purpose of exciting a barren admiration: in these man recognizes the secret of his own existence.

The *composition of the atmosphere*, and the proportions of its component parts, have at last discovered the nature of the air in which we live. But yet the *art of eudiometry*, and all the means employed for carrying it to perfection, have only proved the varieties of these proportions; and it is in vain that we have hitherto expected from eudiometry satisfactory proofs of its degree of salubrity. In order to obtain certain knowledge on this point, we must have recourse to the examination of its effects upon the animals which respire it, to the alterations induced by the matters which contaminate it, and to the phenomena of *asphyxia*. We are at least already well aware, that of all the poisons which infect the atmosphere, the most virulent known, among those by whose causes we are commonly surrounded, are the combinations which form *carbonic acid*, *carbonated hydrogen*, and *fulphurated hydrogen*.

The identity of the products of *combustion* and *respiration*, the similar changes which the air experiences at the same time in the lungs, and on the surface of the skin, the new qualities which the blood acquires in passing through the pulmonary vessels, exhibit, under a new point of view, the relations

of October of the same year. About the same time, he repeated the experiments which had formerly procured him his dephlogificated air, in the presence of many of the scientific chemists of Paris, at the celebrated M. Trudaine's. † TRANSLATOR.

† See Doctrine of Phlog, established, p. 119.

relations of man with the air which he breathes, and with the atmosphere in which he is immersed. From that period, the weight and elasticity of the air have ceased to act the most prominent part in the theory of its uses in respiration. To the physiologist's eye, the life of man, as well as that of the lower animals, has become the result of the combinations of a fluid destined to effect a continual renovation of the surface of the globe, in all those points which are submitted to its action. But is this vast fountain of life inexhaustible; and in the midst of its continual losses, and of its perpetual alterations, how can it recover its strength, or recruit its exhausted energy?

The fine experiments of *Ingenhousz* on vegetables, seem to unveil this mystery of nature. The property which light appears to excite into action in vegetables, of pouring a stream of pure air into the bosom of the atmosphere, especially of discharging it in the greatest abundance, when in contact with water, and with carbonic acid, announces to us their being vested with a function, which is the exact counterpart of the respiration of animals: and points out to us animated beings mutually furnishing themselves with the materials of life, and nature alternately restoring to both the requisite proportions of atmosphere, always changeable, and always capable of being repaired.

In the midst of these combinations and transformations of bodies, one fugitive substance appears and disappears, escapes the notice of our senses, declines to subject itself to the test of the balance, incalculable in its mass, undefinable in its nature. *Caloric*, which the thermometer points out to us without instructing us in its proportions, ultimately suffers itself to be arrested. One of its most constant effects becomes the measure of its quantity, and a portion of this substance, formerly inappreciable in the

centre of the calorimeter, no longer evades the calculations of *Lavoisier* and of *Laplace*. In the process of respiration, the animal suffers a great proportion of this substance to escape. This proportion, compared with the quantity of carbonic acid, formed, with that of the oxygen gas of which the atmosphere is deprived, seems to substantiate another product of respiration; and this product corresponds to the water that escapes in the form of vapour from the vessels of the lungs. Caloric united to arterial blood, and transmitted with it to the different parts of the body, partly, at least, unfold to us the secret of *animal temperature*, and of the means employed by nature in repairing its losses.

With this theory is connected that of the *transmission of caloric* through the different bodies of nature, by the intervention of their conducting properties. A great variety of phenomena, till lately very little known, elucidated by *Benjamin Thomson*, Count Rumford, discover to us the manner in which this principle is transmitted through elastic fluids and liquids; and the art of propagating, of confining, of preserving, and of distributing heat, contributes to improve those of constructing our habitations, of clothing our bodies, and of preparing our aliments.

New instruments of analysis, furnished by the combinations of that active, universal, transforming principle, the *base of oxygen gas*, discover to us, in the midst of grand analogies, striking differences between the *principal vegetable and animal substances*. Both of them are converted into oxalic acid. But the *azotic gas*, which the latter emits in such abundance, proves that the resemblance between them is not in every instance entirely complete. The composition of ammonia, formed of the same characteristic principle of animal substances, united to *hydrogen gas*, revealed in the hands of *Bertholet* a secret, which the chemists,

for so long a period, had demanded of nature, and for so long a period received a refusal. Two classes of substances are found distinctly formed in vegetables and animals, and the theory of animalization is sketched out.*

One of the most singular products of animal organization, *phosphorus*, and the *phosphoric acid* in which it results, already well known in the basis of bone, and in the animal fibre; have been traced in the aliments, in the excrementitious fluids, in the formation of the hair, of the horns and of the skin of animals, in the gastric juices, in the nutritious fluids, and in that which is consecrated to reproduction. *Bertholet*, *Fourcroy*, and *Vauquelin*, have examined their relations and differences, in gouty diseases, in the comparison of people of different ages, in that of men with the lower animals; and if we are still unacquainted with the method of its formation, we at least obtain a glimpse of its connection with the phases of life, and with the derangements of the animal economy, in most of the diseases which afflict humanity.

Lavoisier and *Seguin* have also endeavoured to inform themselves of the phenomena of *perspiration*, and to subject it to experiments, whose accuracy leaves nothing to desire upon this subject. Others are doubtless invited to finish the labours which they left incomplete; as for us, let us refrain in this place from superadding to immortal regrets, shameful and deplorable recollections.

While modern chemistry has acquired so many claims upon our acknowledgments, *Coulomb* has subjected electricity to calculation; he has measured its minutest proportions, and determined the progressions, which it follows to the different points of the surfaces of bodies. In fine,

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this

* the article ALIMENT, ch. i, sec. 3.

this substance, equally, malleable, and much more, which in its motions, than caloric, permits itself, like the latter, to be measured; and the balance appreciates all the degrees of its action. *Volta* accumulates and confines it in his condenser: the doubler of electricity, invented and improved by *Bennet*, *Darwin*, *Nicholson*, and *Read*, seems to collect its faintest traces, scattered through the atmosphere, and even to ascertain the alterations which it instantaneously experiences, from the respiration of animals.

An unexpected prodigy is preparing, and a phenomenon, which *Haller* amid so many experiments and researches had not perceived, comes, as it were, spontaneously to offer itself to *Galvani's* attention. That combined apparatus of nerves and of muscles, with which nature generates within us the whole phenomena of motion, isolated from the whole, is languid, inactive, and, in appearance, completely deprived of life. It unexpectedly revives, at the instant of simple contact, established or broken between the parts of the circle of conductors upon which it rests. On the one hand, the rapidity of communication, and the nature of the conductors, seem to establish between these phenomena, and those of electricity, strong analogies, which other observations appear to destroy. On the other hand, the steadiness of the phenomenon, independent of the ligation of the nerves, independent of the complete severation of their trunk, independent of the difference either of the parts or of the individuals from which they are taken, provided that the parts separated be either contiguous, or communicate by means of proper intermedia, seems to forbid our assimilating its cause to that which in the living body supports the natural influence of the nervous or the muscular systems. What will be the consequences of the discovery of a property so very surprising? Let us still refrain from giving a decision on this point.

Finally, the anatomist's eye surveys in succession all the lower animals, and comparing their structures with that of man, he has drawn a parallel between all the systems which compose the appurtenances of their life. From man to insects, *Cuvier* investigates and develops the structures of the viscera; and the dispositions of the nervous and the muscular systems. He shews in what orders of animals the chyle circulates by the influence of a contractile heart and of arterial vessels, and is carried from the centre to the extremities and surfaces, to be afterwards reconducted towards the centre: in what other orders the same fluid, only effused into the intervals between the viscera, soaks those parts which it appears to nourish, only by watering them. He unfolds in each of them the structure of those organs by which the atmosphere or circumambient fluid is submitted to the mechanism of a true respiration, whether the fact be, that this atmosphere, whatever be its nature, received into lungs properly formed, there finds a nutritious fluid carried thither by pulmonary vessels; whether the same atmosphere, conveyed by appropriate vessels, appears to go in quest of the nutritious fluid as far as the heart; whether being disseminated throughout the body by means of its respiratory pores, it everywhere comes into contact with the juice poured out in the whole extent of the animal's body. *Cuvier* points out to us the universality of this function of respiration, superior even to that of the circulation, and always maintaining a constant affinity with the restoring fluid, and consequently with nutrition. Thus do we observe, that the first end of the organization of animated beings, the support of life, however complicated or simple may be its mechanism, is always resolved into one problem alone, that of establishing a perpetual relation between the circumambient fluid and the alimentary juices.

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CONJECTURES RELATIVE TO THE ADVANTAGES WHICH
THE PHYSICAL KNOWLEDGE OF MAN AND OF HYGIENE
MAY DERIVE FROM THE DISCOVERIES ALREADY MADE,
DURING THE COURSE OF THE FOURTH EPOCH.

So many successful labours appear to enlarge the horizon of nature to our sight; and it is only by a retrospective view of past ages, and by reflecting on how many illusions enthusiasm has frequently introduced into our theories, that we are taught to pause and to say, *one plausible error alone can, during many ages, exclude us from the path that conducts to truth.* But if we ought to speculate with caution, we ought not at least to relinquish hope, while we indulge in the contemplation of the consequences announced to us by these premises.

One solitary truth, clearly demonstrated, can form a bond of connection between all the branches of hygiene.

Let the changes which the air experiences, and which it operates in our organs, and in our fluids, be equally well explained throughout the animal economy, as in the pulmonary functions: let us attain to an equal degree of certainty respecting the effects of the atmospherical fluid, in all the parts in which it enters into some combination with the nutritious matter; in the stomach and intestines, with the alimentary mass, or with the aliment *which is destined to afford nourishment*, and is about to be converted into chyle; in the lungs, with the aliment *which is ready to part with its nutritious matter*, and which presents itself to its action in the chyle completely formed, and in the blood immediately after its reception; at the surface of the skin with the aliment *which is about to be vested with nutritious properties*, and which, under the form of lymph, is diffused in

in the lymphatic system, and in the subcutaneous cellular webs, with the same lymph united with the fat, and changed into milk in the mammary organs, where it obeys so quickly and so obviously the influence of atmospherical contact, in what females distinguish by the name of *the ascent of the milk*; and we shall have a more complete and a less conjectural theory of the relations of the action of the air with nutrition.

To this, let us subjoin a more perfect knowledge of the relations which unite the excretory functions, and their products, with the different changes which the food undergoes in the body. Let us suffer ourselves to be persuaded that the carbonic acid, and the aqueous vapour, formed in the lungs; that the same products formed in the perspiratory organs; that the water, which is frequently precipitated with such rapidity, especially in the first moments of digestion, towards the urinary canals; that the different gaseous fluids evolved in the intestinal passages; in short, that the bile which filters through the biliary pores, situated near the vascular system of the vena portæ, are only different results of the same means which nature employs in different parts of the body, and of the circulation to deprive the blood and the alimentary juice of a part of their carbon and hydrogen. We shall then have a positive proof, as well as an explanation, of that important observation, so much extolled by medical physiologists, that all the evacuations, whether in their natural order, or in a state of disease, are partly destined mutually to supply each other, and ought to be regarded as subordinate parts of one individual universal operation.

In respect to that other product, equally important, which is evolved in the midst of all these processes, *caloric*, if, by means of experiment, we shall one day satisfy ourselves

selves that it is not only discharged in the pulmonary organs, in the proportions which answer to the combinations of which oxygen gas furnishes the basis; but that it is also formed by analogous means at the surface of the skin; that it is perhaps also extricated in other proportions, by the transformations seated in the biliary, intestinal, and urinary passages, superadding to this the knowledge of the constant and even reciprocal relations between the intensity of animal heat and the degree of susceptibility in the nervous and muscular organs: we shall, in the first place, obtain a still more comprehensive idea of the resources of nature to generate animal temperature; we shall better perceive the advantages of a cold and dense air over that which is warm and rarified, to promote those combinations, of which this heat is a product; and we shall be possessed of a theory of the action of free and renovated air upon the cutaneous organs in children, in nurses, and in men, who take exercise in open air, and in eruptive complaints. We shall also be able to account for the differences which are perceptible in the skin, and in the whole cutaneous lymphatic system, between men brought up in the obscurity of cities, and in low moist situations, and those who are enveloped in the circulating air of plains, and who live in dry and elevated situations. We shall likewise be able to explain the varieties of animal heat during digestion, and in the different periods which share in the labours of that process. Finally, we shall still farther have it in our power to sketch the theory of febrile heat, or of cold, in pulmonary, intestinal, and bilious maladies.

If to these results we subjoin the theory of the conducting powers of caloric, considered in respect to the different substances with which we are surrounded, and to those which are applied to our bodies, or which serve as garments;

ments; the theory of the production of cold by evaporation; considerations regarding the power which heat, even externally applied, possesses of quickening and reviving, and cold of blunting and impeding the functions of the nervous and muscular systems: if we also determine in what degree these phenomena obtain, either in general or in the particular cases of individuals: if it be competent for us to ascertain at what point external cold, according to age, temperaments, and circumstances, promotes these combinations which generate animal heat; at what degree, on the contrary, ought the point to be placed, at which this natural heat is so far surpassed by the external cold, that it results in the diminution or extinction of the moving powers: we shall then be possessed of a complete theory of the utility and dangers of cold or of heat, relative to the effects of the air, baths, and dress; and we shall also obtain the solution of so many questions, so often discussed and so erroneously decided, relative to education, to the treatment of cutaneous diseases, to the regimen of nurses, of children, of adults, and of old men.

It is not necessary for me to enlarge farther on these objects, or to subjoin other examples, in order to shew how fertile in consequences, one solitary fact, fully perceived, may become; how much the progress of the physical and chemical sciences, aided by the discoveries of comparative anatomy, must concern those who devote their time to the study of *hygiène*, and contribute to the solution of so many great and important questions; how, in short, all the theories respecting climates, temperaments, air, dress, aliments, excretions, exercise, and consequently education and regimen, rally round those very questions exclusively, which have just now been proposed.

How desirable would it be, that in the important and valuable

valuable art, to which I wish usefully to consecrate my labours and my life, the perfection of a language whose expressions would be less borrowed from theories which destroy each other in succession, and more enumerative of facts which are immutable; whose compound words conveying a just idea of what they express, might form a language clear and concise; and whose influence over our ideas would no longer result in the inevitable effect of an emblematical, metaphorical, and inaccurate language, the inconvenience, viz. of leading us to mistake the terms of a convention for the voice of nature, could be superadded to what has been advanced!

Here I close this discourse, whose object has been to review the history of the art and its resources; the progress which it has actually made, and that which it might have made; the connection of this art with all the other sciences, and the necessity under which the man who devotes himself to its study labours, of cultivating and becoming acquainted with them. It was not my intention to quote all the works worthy of being noticed, and to sketch a plan of a library of *hygiène*. I have considered not men in particular, but the human mind in general, as a being whose life is composed of a succession of ages, and is divided by unequal intervals, between the attempts of infancy, its simple and ingenious spirit, and the hopes which it teaches us to entertain, the frivolous pursuits, the prejudices, and the incredulity of the second period; the ebullition, the imagination, and the errors of youth; finally, the firm confidence which experience communicates in mature age, and the great efforts which it is capable of making when it ascertains its forces, and the distance of the end which it wishes to reach.

[I SUBJOIN

[I surjoin here a plan of a treatise on *hygiène*, almost similar to what I have inserted in the fourth volume, p. 255, of the Journal published by *Citizen Fourcroy*, under the title of *Medicine illustrated by the physical sciences*. I give it without adding in this place any elucidations of which it may be susceptible, because I hope to realize it in one of the preliminary discourses, afterwards to be prefixed to the whole Dictionary of Medicine, where I shall present it to the public with some improvements; the necessity of which experience has already taught, but which require to be farther premeditated.]

EXPOSITION OF A PLAN OF A COMPLETE TREATISE ON *HYGIENE*.

“ *HYGIENE*, as well as the art of healing, is only the result of particular observations composed and generalized. These observations have been collected from the experience of all ages, and of all countries; they have varied according to the circumstances of the times, and to the situation of places; to their analogies and differences the art is indebted for its existence.

“ It is on this account that I have deemed it useful to premise, by way of introduction to *hygiène*, 1^{mo}, *physical and medical geography*; 2^{do}, *physical and medical knowledge of history*: these are, so to speak, the patterns which we imi-

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tate; they ascertain the practical and positive department upon which the theoretical and general branch of the art is established.

"The object of this theoretical and general division, which constitutes the elements of the art, is to propose rules conducive to the preservation of health. These precepts have for their end to ascertain the use of those things which minister to our necessities and to our enjoyments; and even to settle the measure which in the exercise of our moral and physical faculties, is adapted to the constitution of man, to the circumstances in which he is placed, and, of consequence, necessary to his preservation. This measure, on the one hand, corresponds to the nature of man; and, on the other, to the nature of things; and to their influence upon our organs and our constitutions.

"Thus the study of *hygiene* is necessarily divided into three parts.

"The first includes the knowledge of the healthy man, in all those conditions, which diversify his wants and faculties. The second has for its object the knowledge of the things which he uses and enjoys, and of their effects upon his constitution and organs. The third comprehends the laws deduced from these sources of knowledge, and determines the bounds within which his enjoyments must be limited, if he would wish to enjoy a confirmed state of health.

"In the language of the schools, these three branches may be denominated the *subject*, the *materia*, and the *modus* of *hygiene*.

"But there is a second division of the *subject*, of great importance in this place, and of which I observe few examples in the works of those who have treated of *hygiene*: although I am far from alleging that they have overlooked this

this distinction, it is that of *public hygiène* and of *private hygiène*, according as man is considered, collectively, or in society, or in his individual capacity. It is in *public hygiène* that the philosophical physician becomes the legislator's soul and adviser; and, in this respect, many fine examples have been handed down to us from antiquity.

"A complete treatise on *hygiène* ought, in my opinion, to be closed with what I consider an important inquiry, the consideration of the light which *hygiène* reflects on the art of healing. In truth, the different shades of the state of health conduct us to the different dispositions which render us obnoxious to disease. The varied effects which the things that man uses and enjoys produce upon his constitution, lead us to the causes which derange and disturb his health; and the difference of the measures within which his enjoyments ought to be confined, according to the diversities of his constitution, places us in the immediate vicinity of the variations of regimen, suited to the different conditions of the man who labours under disease.

"The connection of *public hygiène* with the measures rendered necessary by epidemic plagues, completes the table of these relations.

"Such, then, are my motives; and such the basis upon which I have constructed the plan of which I here exhibit the first sketch. I have given some idea of the manner in which it should be executed, in the articles *Africa*, *Agés*, or *different periods of life*, (*regimen of*), *Affections of the soul*, (*hygiène*), *Air*, *Atmosphere*, *Aliments*, *Europe*, &c. of *Encyclopedical Dictionary of Medicine*."

HYGIENE.

INTRODUCTION.

- I, Natural History of Man, in different climates; or, *Physical and Medical Geography*.
- II, Natural History of Man, in different ages; or, *Physical and Medical Knowledge of History*.

Division of *Hygiène* into Three Parts.

PART FIRST.

Subject of Hygiène :

Or the knowledge of Man, in a sound State of Health, in his Relations, and in his Differences; that is to say, in society, or in his individual capacity.

PART SECOND.

Matter of Hygiène :

Or the knowledge of those things which Man uses or enjoys, improperly denominated *Non-naturals*, and of their Influence upon our Constitution and our Organs.

PART THIRD.

Means or Rules of Hygiène :

Or Rules which determine the measure within which the use of the things called *Non-naturals* ought to be restrained for the preservation of Man; considered either as a member of society, or in his collective capacity, or as an individual.

PART

PART FIRST.

SUBJECT OF HYGIENE.

Division of this First Part into Two Sections.

SECT. I. Knowledge of Man in a sound State of Health, considered in Society or in his relative Capacity.

- 1, Relations resulting from *Climates* and *Situations*.
- 2, ————— from *Associations* in common Habitations or Places of Abode.
- 3, ————— from *Uniformity* in the Mode of Living with regard to Occupations, with regard to the common use of Air, of Food, &c.
- 4, ————— from *Uniformity* in *Customs* and *Manners*, *Laws*, *Governments*, &c.

SECT. II. Knowledge of Man, considered individually, or in his Peculiarities.

- 1, Peculiarities relative to different Periods of Life.
- 2, ————— to the *Sexes*.
- 3, ————— to *Temperaments*.*
- 4, ————— to *Habits*.
- 5, ————— to *Professions*.
- 6, ————— to different Circumstances of Life: Poverty, Convalescence, Travels, &c.

* I hope to give in one of the articles of this *Tristramy* some ideas concerning a new classification of constitutions and of temperaments.

PART SECOND.

MATTER OF HYGIENE.

Division of the Second Part into Six Classes. †

CLASS I. *Circumfusa* :

Or things with which we are surrounded.

II. *Applicata* :

Or things applied to the Surface of the Body.

III. *Ingesta* :

Or things destined to be introduced into the Body by the primary Passages.

IV. *Excreta*, Excretions :

Or things destined to be expelled from the Body.

V. *Gesta*, Actions :

Or Functions which are exercised by the voluntary Motion of the Muscles and Organs.

VI. *Percepta*, Perceptions :

Or Functions and Impressions which depend upon the Sensibility and Organization of the Nerves.

CLASS

† One part of this classification is borrowed from the division of the occasional causes of diseases, adopted by the ancients, and stated by *Borhaave* in his *Institutions of Medicine*, paragraph 744. This division is limited to four principal articles; *circumfusa*, *ingesta*, *excreta*, *et gesta*, which the ancients thus expressed, τα ἔξωθεν πρὸς ἀνθρώπῳ, quæ entus accident; τα προσπίπτοντα, quæ apponuntur; τα κινουμένα, quæ evacuantur; τα κινούμενα, quæ geruntur. The division which I propose appears to me more complete and more applicable to *hygiene*.

CLASS I.

CIRCUMFUSA, divided into Two Orders.

ORDER I. *Atmosphere.*

- 1, Air, and Substances which are dissolved in it, mixed or combined with it.
- 2, Solar Heat and Light; artificial Heat and Light.
- 3, Electricity.
- 4, Magnetism, and Influences.
- 5, Natural Changes of the Atmosphere; Succession of the Seasons; Temperatures; Meteors, &c.

ORDER II. *Land, Situation, and Water.*

- 1, Climates.
- 2, Exposures.
- 3, Soil.
- 4, Natural Changes of the Globe, Earthquakes, Inundations, &c.
- 5, Artificial Changes of Places, Culture, Habitations, &c.

CLASS II.

APPICATA, divided into Five Orders.

ORDER I. *Dress; Garments, Ligatures, Machines, Beds, Coverings,*

II. *Cosmetics; Attention to the Hair, to the Beard, to the Skin, Paints, Perfumes.*

ORDER III. *Cleanliness; Baths, Lotions, Stoves, &c.*

IV. *Frictions and Unctions*, (practised among the Ancients).

V. *Medicinal Applications*, as Amulets, &c.

CLASS III.

INGESTA, divided into Three Orders.

ORDER I. *Aliments.*†

- 1, Simple Aliments; Vegetable, Animal, &c.
- 2, Compound Aliments.
- 3, Seasonings.
- 4, Preparation of Aliments, Cookery.

ORDER II. *Drinks.*

- 1, Water.
- 2, Aqueous Juices of Vegetables and of Animals.
- 3, Infusions and Mixtures in Water.
- 4, Fermented Liquors, and Infusions in these Liquors.
- 5, Alcoholic Liquors, and Infusions in these Liquors.

ORDER III. *Non-evacuants, preventive Remedies, &c.*

CLASS

† See the plan of the division of aliments, conformable to vegetable and animal analysis, of which I have given a sketch in this Dictionary, article Aliment. art. 6. paragr. 3.

CLASS IV.

*EXCRETA, divided into Two Orders.*ORDER I. *Natural Evacuations.*

- 1, Continual.
- 2, Daily.
- 3, Periodical.
- 4, Extraordinary and irregular; Lochia, feminal Evacuations.

ORDER II. *Artificial Evacuations.*

- 1, Sanguineous.
- 2, Ulcerous.
- 3, Medicinal; Tobacco, Enemas, Purgatives, Emetics.

CLASS V.

*GESTA, divided into Four Orders.*ORDER I. *Watching.*ORDER II. *Sleep.*ORDER III. *Motion and Locomotion.*

- 1, General Motion; impelled, spontaneous, mixed.
- 2, Partial; of the Limbs, of the Organs of the Voice, of Speech, &c.

ORDER IV. *Rest.*

- 1, Absolute, or Inaction.
- 2, With active Disposition, without Locomotion; Position, Station, Efforts.

CLASS

CLASS VI.

*PERCEPTA, divided into Four Orders.***ORDER I. Sensations.**

- 1, The external Senses.
- 2, Hunger, Thirst; and the Sensation of all our physical, moral, intellectual, and habitual Wants.
- 3, Physical Love.
- 4, Sympathy and Antipathy.

ORDER II. Functions of the Soul.

- 1, Passive Affections; agreeable, painful.
- 2, Active Affections; Attachment, Aversion.

ORDER III. Functions of the Mind.

- 1, Intelligence.
- 2, Imagination.
- 3, Memory.

ORDER IV. Debility, or Privation of Perceptions.

- 1, Of the Senses; Apathy.
- 2, Of the Soul; Indifference.
- 3, Of the Mind; Inactivity.
- 4, Ennui; Reclivity; Uneasiness of Mind.

PART

§ See concerning this important classification, the *Passive Affections of the Soul (bygiene)* of this Dictionary.

PART THIRD.

MEANS OF HYGIENE.

Or Rules for the Preservation of Man, by the well-regulated
Use of the Things called *Non-naturals*.

Arrangement of this Third Part into Two Divisions.

DIVISION I. *Public Hygiene:*

Or Rules for the Preservation of Man,
considered as a Member of Society, or
in his collective Capacity.

II. *Private Hygiene:*

Or Rules for the Preservation of Man,
considered as an Individual.

DIVISION I.

PUBLIC HYGIENE, arranged into Four Sections.

SECT. I. *Rules of Public Hygiene relative*

To Climates and Situations.

II. To common Places of Abode or Habitations.

III. To the common Mode of Living; in respect to
common Occupations, to the common Use
of Air, of Aliments, &c.

IV. To Customs, to Manners, to Laws, &c.

DIVISION

DIVISION II.

*PRIVATE HYGIENE, in Three Sections.*SECT. I. *General Principles of Regimen.*

II. *Rules relative to the Nature of Air, of Aliments, &c.; or the Generalities of Regimen.*

III. *Rules relative to the Differences among Individuals; or the Particularities of Regimen.*

SECTION I.

General Principles of Regimen, Four Orders.

- ORD. 1, *In the Manner; Use, Abuse.*
- 2, *In the Measure; Excess, Privation.*
- 3, *In the Order; Regularity, Irregularity.*
- 4, *In the Duration, or Continuity; Habits, Changes.*

SECTION II.

Generalities of Regimen:

Divided into Six Orders, according to the Division of the Second Part of *Hygiène* into Six Classes. (*See that Division.*)

SECTION III.

Particularities of Regimen: Divided into Six Orders.

- ORD. 1, *Regimen in different Periods of Life.*
- 2, ——— of Sexes.
- 3, ——— of Temperaments.
- 4, ——— relative to Habits.
- 5, ——— relative to Professions.
- 6, ——— relative to Circumstances of Life; Poverty, Travels, Convalescence, &c.

Consequences

*Consequences of HYGIENE, or its Connections
with the Art of Healing.*

- I. Species of Connections: *concerning the Differences of Man in a sound State of Health, with the predisposing Causes to Diseases.*
 - 1, Of Man in his social Capacity; epidemical and endemial Dispositions.
 - 2, Of Man considered as an Individual; individual Dispositions to Diseases, according to the Period of Life, Sex, Temperament, &c.
- II. Species of Connections, *concerning the Knowledge of the things called Non-naturals, with the occasional Causes of Diseases dependent on the State of the Air, &c.*
- III. Species of Connections, *concerning the prophylactic Rules of Hygiene, with preservative and curative Precepts.*
 - 1, Of epidemic and endemial Diseases.
 - 2, Of sporadic Diseases.

NUMBER X.

ON LONGEVITY.

This little piece of Lucian's is (to speak in the language of painters), in his worst manner; being nothing more than an enumeration of persons who were remarkable for the length of their lives. It was customary, it seems, at that time, on the birth-days of great men, for poets, orators, and all the herd of flatterers, to send them compliments on the occasion. This is one which our orator sent to Quintillus, who, with his brother, was prefect of Greece, under the emperor Marcus Aurelius, whom he likewise takes the opportunity of paying his court to. Though there is not much wit or humour in this treatise on Longevity, I would recommend it to those amongst my readers, who use spectacles, to whom it may probably afford some consolation.

ACCEPT, most excellent Quintillus, as a small tribute, my list of long-livers, which I was admonished to present to you by a dream, that I had on that night when you gave a name to your second son, when I prayed to the gods that both you and your children might live a long and happy life, well knowing that length of days to you would prove a blessing

a blessing to all mankind, and particularly to me and mine: for to me also the dream seemed to preface something good: as it appeared, therefore, to be the will of the gods that I should offer to you something in my own way, and suitable to my profession, on this auspicious day, the day of your birth, I here send you an account of all those who were remarkable for having lived long, and enjoyed health of body and mind; whence you may reap the double advantage, first, that of a cheerful and well-founded hope that you may yourself arrive at a good old age, and secondly, the conviction you will receive from the examples which I will produce, that those only can enjoy perfect health and long life, who take the greatest care both of mind and body. . . .

The life of Nestor, the wisest of the Greeks, was, according to Homer, extended to three times the natural age of man, and he is described as the model of industry and application. Tiresias also, as the tragedians inform us, lived more than six ages; and most probable it must be, that a man dedicated, as he was, to the service of the gods, and inured to temperance and sobriety, should attain to length of days. Whole nations of men are celebrated for their longevity, on account of their manner of living; as the Egyptians, who were called sacred scribes; * the Assyrians and Arabians, interpreters of mysteries; the Indian Brachmans, deeply skilled in philosophy; those who are called the Magi, prophets and holy men amongst the Persians, Parthians, Bactrians, Chorasmians, Sacians, Medes, with many other barbarians; these were all remarkably long-lived and healthy, owing most probably to that tem-

perance.

* See Diodor. Sic. c. xvi. n. 26.

parents and abstinence which their climates obliged them to. Even at this time there are whole nations that live much longer than others; the Scythians in particular, who are said to extend life even to three hundred years: some attribute this longevity to the air, others to the soil, and others to their manner of living, for they drink, it is said, nothing but water. History tells us that the Scythians* also, frequently live to a hundred and thirty, and the Chaldeans to above a hundred, feeding on barley bread, which strengthens the sight, and makes their senses quicker and more powerful than those of other men.

But I have spoken hitherto only of those people who, we are told, lived longer than others, either from the temperature of the air, their manner of living, or both together; it is necessary I should also add, for your future hope and comfort, that in every climate, and in every age, men have frequently enjoyed long life, by the means of proper exercise, and using that diet which conducted most to health and strength.

I shall divide my narrative into several parts, according to the several ranks of men, beginning with kings and leaders; happy to number amongst them our own august and pious emperor, whose life is the glory and happiness of his people: these illustrious examples you may yourself hope to imitate, and by practising their temperance, inherit their longevity. Numa Pompilius, the most prosperous and happy of Roman kings, and who made the worship of the gods his peculiar care, is said to have lived to fourscore and upwards; and Servius Tullius, another king of the Romans, to the same age; and Tarquin, their last sovereign, after his banishment to Cumæ, enjoyed life in perfect health for

* The inhabitants of mount Athos.

more than ninety years. I could mention many other kings, as well as the Roman, together with several persons of inferior rank, both at Rome and in other parts of Italy, who lived to a great age. We must call in history to refute the opinion of those who find fault with our air as unwholesome; and which flatters us with the pleasing hope that our prayers will be crowned with success, and that the lord of the earth and seas,* who is already far advanced, will long rule over this land, and attain to a great and happy old age. Arganthonius, king of the Tartessians, lived a hundred and fifty years, as we learn from Herodotus the historian, and the poet Anacreon; though by some the account is deemed fabulous. Demochares and Timaeus tell us, that Agathocles, king of Sicily, died at ninety-five; we are informed likewise by Demetrius and others, that Hiero lived to ninety-two, after a reign of seventy years. Ariarathes, king of Scythia, died at ninety, fighting against Philip, on the banks of the Ister. And Bardylis, sovereign of the Illyrians, is said to have fought on horseback at the same age; and Teres, king of the Odryians, as Theopompus† tells us, died at ninety-two. Antigonus Cocles, king of Macedonia, and son of Philip, fell in the battle with Seleucus and Lyfimachus, covered with wounds, when he was eighty-one years old, as we are informed by Hieronymus, who accompanied him in that expedition, and who tells us also, that Lyfimachus, king of the Macedonians, fell in the war against Seleucus, when he was just fourscore. Antigonus, son of Demetrius, and nephew of the

one-eyed

* A pretty high strained compliment; but we must remember it was paid to an emperor.

† The celebrated historian.

one-eyed Antigonus, ruled over Macedon four-and-forty years, and lived to eighty, according to Medius and other writers; and Antipater, the son of Bolana, a man of great power and authority, who was governor to many of the kings of Macedon, died upwards of eighty. Ptolemy of Lagus, the most prosperous prince of his time, possessed the kingdom of Egypt to the eighty-fourth year of his age, and, two years before he died, resigned it to his son Ptolemy Philadelphus, the only child who survived him. Philotaurus, the eunuch, the first who acquired the kingdom of Pergamus, held it for a long time, and died at fourscore; and Attalus, surnamed Philadelphus, another king of the same place, who was visited by Scipio the Roman general, lived to the age of eighty-two. Mithridates, king of Pontus, surnamed the Builder, died, after his flight from Antigonus, at eighty-four, as Hieronymus and other writers inform us. The same historian says that Ariarathes, king of the Cappadocians, lived eighty-two years, and might probably have survived many more, if he had not been taken prisoner in the battle against Perdiccas, and condemned to the cross. The Elder Cyrus, king of Persia, according to the monumental inscriptions, (and this is confirmed by Onesicritus, who wrote the life of Alexander), when he was a hundred years old, meeting with one of his friends, whom he had been long in search of, and hearing from him that many persons had been put to death by his son Cambyses, who reported that it was done by order of his father, partly on account of his son's cruelty, and partly because he had been himself accused of conniving with him, died of grief. Artaxerxes, surnamed Mnemon, on account of his extraordinary memory, whom the Younger Cyrus waged war with, died at eighty-six, Dinon says ninety-four. Another king of Persia of the same name, who, as Ildorus

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the historian reports, reigned in his time, was cut off by treason at the age of ninety-three, his brother Gostilares conspiring against him. Sinartoches, king of the Parthians, on his return from Scythia, took possession of his kingdom at fourscore, and reigned seven years : and Tigranes, king of Armenia, who went to war with Lucullus, was eighty-five when he died. Hyspasines, who ruled over the Characians and other people bordering on the Red sea, lived to the same age ; and Tiræus, the third king from him, was carried off by a disease at ninety-two. Artabazus, the seventh sovereign from Tiræus, was brought into the kingdom by the Parthians at eighty-six, when he began his reign. Mnafires, likewise, another king of that nation, lived to ninety-six. Masinissa, king of Numidia, arrived at his ninetieth year. That Asander, whom Augustus made governor of the Bosphorus, fought both on foot and horseback at the age of ninety, and was inferior to none : three years after he starved himself to death, being piqued at the citizens for deserting him, and going over to Scribonius. Iudorus, the Caracenan, tells us, that Gocinus, who was his contemporary, and king of the Omanians, in Arabia Felix, lived to a hundred and fifteen : these are all the princes whom history has celebrated for their longevity.

But as many philosophers, and men of letters, who take more care of themselves, have also lived to a great age, I shall endeavour, as far as any records will supply us with information, to enumerate them. And first, for the philosophers : Democritus of Abdera, was turned of a hundred and four, when he voluntarily abstained from all food, and died. Xenophilus, the musician, and remarkable for his perfect knowledge of the Pythagorean system, lived at Athens, to the age of a hundred and five, and upwards, as

we are told by Aristoxenus. Solon, Thales, and Pittacus, three of the seven wise men, were each of them at least a hundred years old. Zeno, the prince of stoic philosophers, at the age of ninety-eight, as he was coming into the school, stumbled, we are told, and immediately cried out, "Dost thou call me?" * he then returned home, refused all manner of sustenance, and died. Cleanthes, his disciple and successor, had an impostume in his lip when he was ninety-nine, and resolved to die in the same manner; but receiving letters from his friends, requesting him to do something for them, he took a little sustenance, performed what they required, then starved himself, and died. Xenophanes, the son of Dexinus, a disciple of Archelous, the naturalist, lived to the age of ninety-one. Xenocrates, a scholar of Plato's, to eighty-four. Carneades, principal of the New Academy, to eighty-five; Chrysippus, fourscore; and Diogenes, the Seleucian, a stoic philosopher, eighty-eight. Posidonius, the philosopher and historian, a native of Apamea in Syria, but afterwards made a citizen of Rhodes, died at eighty-four; and Critolaus, the peripatetic, at eighty-two and upwards. The divine Plato lived to eighty-one. Athenodorus, of Tharsus, who was tutor to Augustus, and prevailed on him to exempt that city from all taxes, for which the Tharsians paid him annual worship as one of their heroes, died, in his native country, at eighty-two; and Nestor, the stoic, of the same place, preceptor to Tiberius, at ninety-two. Xenophon, also, the son of Gryllus, lived to upwards of ninety. These were the famous philosophers, who were remarkable for their longevity.

Amongst

* Speaking to the earth.

Amongst the historians, the most extraordinary in this respect was Etefibus, who is said to have dropped down dead as he was walking, at the age of a hundred and twenty-four, according to Apollodorus. Hieronymus, a famous warrior, after receiving innumerable wounds, and a life of labour, lived to upwards of a hundred and four, as Agatharchides informs us, in his ninth book of the History of Asia, where he expresses his admiration of a man who was able to perform all the offices of it, and had the use of his senses, and was in perfect health, to the very last moment. Hellanicus, the Lesbian, lived to eighty-five; and Pherecydes Syrus to exactly the same age. Timæus, the Tauromenian to ninety-six. Aristobulus, of Cassandra, is said to have lived till ninety, having begun to write his history when he was eighty-four, as he tells us himself in the preface to it. Polybius, son of Lycontas, the Megalopolitan, as he was coming out of the country, fell from his horse, and contracted a disorder which carried him off just on the day that completed his eighty-second year; and Hypsicles, the Amyceniian, a writer, and a man of the deepest erudition, lived to the age of ninety-two.

Amongst the orators, Gorgias, by some called the sophist, died, by a voluntary abstinence from all food, at a hundred and eight: when he was asked what could be the cause of his living so long, and retaining his health and senses to such an extraordinary old age, he used to say, it was owing to his staying at home, and not indulging at other men's tables. Isocrates wrote his famous panegyric at ninety-six; and in his ninety-ninth year, when he was told that Philip had beaten the Athenians at Chæroneæ, he repeated, in a

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mournful

mournful tone, this verse of Euripides, applying it to himself :

* When Cadmus erst his much lov'd Sidon left,

and then adding, that Greece henceforth would be reduced to slavery, he expired. Apollodorus, of Pergamus, the rhetorician and preceptor to Augustus Cæsar, together with Athenodorus, the philosopher, of Tarsus, lived to the same age of eighty-two; and Potamon, an orator of some note, to ninety.

Amongst the poets, Sophocles, the famous tragic writer, died at ninety-five, being choked with a grape-stone: towards the close of his life, his son Iophon accused him publicly of being out of his senses, when he produced before the judges his *Oedipus Coloneus*;† a sufficient proof of the soundness of his mind, inasmuch that the court bestowed the highest encomiums on him, and condemned the son as a madman, in supposing his father to be so. Cratinus, the comic poet, lived to upwards of ninety, having just before gained the prize by his *Pytine*. Philemon also, another comic writer, laid himself down quietly on his bed, at the age of ninety-seven, and perceiving an afs devouring the figs which had been brought for his own dinner, he called his servant, and ordered him to bring the afs some wine, then burst into a loud laugh, which choked him, and he died. Epicharmus, likewise, another comic writer, is said to have lived to the same age. Anacreon, the writer of songs, was eighty-five when he died; and Stesichorus, the ode-maker, of the same age. Simonides, the Cean, was above ninety.

Amongst

* From the *Phryxus* of Euripides. The line is still extant in the fragments, as published by Barnes; it is quoted also by Aristophanes.

† See Cicero de *Senectute*. The story is likewise told by Val. Maximus.

Amongst the grammarians, Eratosthenes, the Cyrenæan, son of Aglaus, who is mentioned by some, not only as a grammarian, but a poet, a geometrician, and a philosopher, also lived to eighty-two. Lycurgus, the legislator of Sparta, is said to have been eighty-five.

These are all the princes and learned men whom I have been able to collect. I promised to give you an account of some Romans and Italians likewise, who were remarkably long-lived; but these, by divine permission,* I propose, most venerable Quintillus, to mention in another treatise on this subject.

*Gr. *Θαν βουλευμεν, Dii valentibus*, or, as the carriers say, God willing.

The following misprints having unfortunately crept into the Treatise on
Hygiene, the reader is requested to correct them.

Page 300 line 9, for *anini* read *anini*.

— 319 line 27, for *Hippocrates* read *Herodotus*.

— 327 line 21, for *voluntary* read *fulutory*.

— 360 line 5, for *more* read *more*.

— 366 line 14, for *adverts* read *adverse*.

— 410 line 20, for *influen* read *infirmus*.

— 433, note, for *naturale* read *naturale*.





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